October 13, 1934

THE LANCET

Offices: 7, Adam Street, Adelphi, W.C.2.
Telegrams: Lancet, Rand, London. Telephone: Temple Bar 7228 and 7229

No. XV. of Vol. II., 1934. LONDON, SATURDAY, OCTOBER 13, 1934. Pp. 136—Price 1s.
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ADDRESSES AND ORIGINAL ARTICLES

MEDICINE AND MORALS*

BY LORD HORDER, K.C.V.O., M.D., F.R.C.P. Lond.
PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL, LONDON

IT is my duty as well as my pleasure in the first instance to thank you for electing me to the high office of President of the Medical Society of London. If I can only succeed in making my efforts on behalf of this now ancient association match my appreciation of the honour you have paid me, my year of office will not fall far short of the best that have gone before me.

I should be deceiving myself if I did not know that to occupy this chair argues some recognition on your part of efforts that I have made to carry on the tradition of medicine in a manner that the founder of this Society would have wished. Looking back—hateful, but alas! in my case appropriate phrase—I think the spectacle that appals me most in regard to these efforts of mine is their discursiveness. I had never realised how discursive they have been until I visited an American university a few years ago. The librarian wished me to test the efficiency of his staff by naming an author the whole of whose published works might be produced for my inspection in record time. Hesitating about a name he suggested my own. Nemesis came a few minutes later when I was faced with a pile of books and reprints that brought to my face, not the blush of a proud father, but of shame and remorse as I thought of the years of ineffectiveness that the dump represented. This thought was still in my mind when, an hour later, I was asked to address a large body of students, of all colours, of both sexes, and of several different professions. "But what shall I talk about?" I asked the Dean protestingly. "It doesn't matter," he replied, unhelpfully. I found that he was right; it didn't. The incriminating pile of inconsequent literature had been placed in front of me, and I took this proof of the desultoriness of my work as the text of my address. My warning seemed to go all unheeded, for cheer upon cheer greeted my urgent plea that my hearers should shun the path that I had trod.

Quite a large part of what happens to us, or does not happen to us, in life seems beyond our control. I should say it seems beyond the control of some, I think most, of us. Here and there arises a man who has the power to force into one mould most of the plastic stuff of his life, and the image he turns out at last is both beautiful, complete and monumental. A Harvey, a Darwin, a Lister—how rare they are. Most of us pass from mould to mould, put in a little here and a little there, and Time, impatient, turns out the wretched half-baked figures, which stand in a row and jeer at us.

But I did not intend to be so autobiographical .... The genial Lettsom was himself discursive, yet managed to achieve lasting fame because he did at least one big thing, he founded this Society. Whatever estimate the history of medicine may ultimately accord him, Lettsom will have his niche so long as the Medical Society of London exists, and that is likely to be as long as London exists.

I hope you will not be disappointed when I say that the title of my address has a piquancy which is quite spurious. It is unfortunate that the word "morals" has become so closely attached to certain aspects of social behaviour. I am not using the word in that sense this evening. I use it in an older and wider sense, difficult always to define, but, as nearly as this can be attempted, I use it to mean the sum of the criteria governing human conduct and thought at the time being. A kind of design for living, a pattern which it is considered well to follow, whether for the individual or for social groups; if you like, customs and manners that have become standardised.

Changing Standards

Morals must have begun very early in man's history. As we know, they are constantly changing, in some eras slowly, in others swiftly. The pattern for the individual changes more quickly, and therefore sometimes more catastrophically, than it does for society in general. This is fortunate for society. The individual can even afford to say "I have no morals"—though by that very admission he declares his morals, which are, in effect, that he is a law unto himself—but society can never be without morals, because it would then cease to exist. No doubt there are certain basic elements in the design which rarely change. There are, for example, "the classical rules of honesty," as Sir Thomas Browne terms them, but when the seer tells us not to think that "morality is ambulatory: that vices in one age are not vices in another; or that virtues which are under the everlasting seal of right reason may be stamped by opinion," we know that history does not give him the support which his sentiment seems at first sight to deserve. If morals were an art only, and not both an art and a science, no doubt the pattern of life would remain much the same for generations together. As it did before science began. But science did, at last, get born, though the travail was long. And with the birth of science, Medicine for the first time became a living thing.

We have been taught to conceive of Medicine as a very ancient human institution. As an art it is of course, ancient, but if we strip away the litter of superstition and dogma that encumbered it even up till Harvey's time, we have very little left even to call an art. Hippocrates laid down some basic principles which should govern the disciples of Medicine, and very excellent they were. But on this foundation he built no edifice, for the simple reason that the bricks and mortar of science did not exist. Nor did any edifice begin to arise for over 2000 years. During all this long and dreary wait the only companionship Medicine enjoyed was that of Philosophy, and this was a barren alliance so far as the patient was concerned, for he could get his mental comfort from the more humanist of his teachers, or from the priest, whereas for his body the physician had very little to offer him. Even in Harvey's day, Francis Bacon complained that physicians, after the manner of spiders, spun webs of sophistical speculation out of their own bowels.

Modern Frankness

At first slowly, against bitter opposition, and then rapidly, as the new criteria became irresistible, science changed the pattern of life. Simultaneously science activated Medicine, which made life longer and better worth living. Men and women began to take control of life themselves. To-day the danger is no longer that they are cramped by authority,

* Presidential address delivered before the Medical Society of London on Oct. 8th.

but that they may be fatigued, or even run themselves to destruction, by their freedom. Realising that the causes of their unhappiness, as of their physical ills, lie in the biological sphere, they seek the physician rather than the priest.

Bewildered by the prospect which their liberty opens out, and all unaccustomed to deal with the raw material of their natures as now revealed to them, they come to the physician for guidance. To them the doctor is the realist, the link between the "fine abstraction" which still beckons, and the "particular application" for which they still hope. He is in the privileged position of the Almighty: he has, or he can have, if he will, all the evidence before him. "He that sinneth before his Maker, let him fall into the hands of the physician." Why? Because to the physician the individual is not a metaphysical constant but a physical variable and this outlook enables him to lift up the weary head and comfort the sorrowing heart. First the explanation, then the guidance, and hope, that best of tonics, is reborn.

Clearly the doctor must needs be priest as well as physician. He, too, must be shriven. For the patient may have gone too far along the road towards scientific economy, placing his trouble in a lower category than that to which it rightly belongs. It may be the loss of his aspirations and his ideals from which he is suffering, not a mere failure to adjust his physiological or psychological balance.

But at least the cards are put on the table in these days, and that is something. Thirty years ago Henry Maudsley complained of the hypocrisy which led folk to condemn the coarser habits and plain speaking of their ruder ancestors whilst they themselves practised a decent concealment of their sensualities. He went on to express the view that more open dealing with a natural function would dispel much hurtful ignorance. Were Maudsley to come back to life and practise to-day, he might be surprised by the frankness with which his patients spoke of those things—a frankness not always free from a suspicion of relish. Clifford Allbutt once said that there was as much harm done by talking about things as by suppressing things, and that to familiarise evil was to tolerate it. The sentiment is appropriate to much that happens in our consulting-rooms. A meticulous description of his stools proclaims a patient a hypochondriac; there is something psychopathic about the glibness with which other patients describe their sex life. I see no more reason for encouraging the latter than the former. Nor is it only from the consulting-room that modesty has fled. In the cult of Nudism we seem to have reached the apothesis of the organic, and in the public advertisement of intimate and family relations called "sharing" we touch the limit of indecency on the psychological side. Coventry Patmore warned us that though

> "Angels may be familiar; those
> Who err each other must respect."

No doubt angels may go naked, yet not be prurient. If they have private lives these probably may be discussed without fear of scandal. But the best of us are still "a little lower than the angels."

Medicine and Public Issues

I must leave the consulting-room for the larger, though doubtless not more important, arena of social morals. Did time permit it would be interesting to note however that resistance against being helped by science did not die with the Renascence. It still survives in the form of Spiritual Healing, in Nature Cures, and in the existence of people who are quaintly called Peculiar, and in those patients who tell us they "do not believe in drugs," as though drugs were a creed.

Passing from the individual to the group, issues and questions which affect medicine in relation to society appear nowadays in rapid succession. If medicine is still to remain humanist, and we must surely hope that it will, it behoves us to take a guiding hand in these things. In some of them we must lead, in others it is more appropriate that society should lead, Medicine examining the matter, answering pertinent questions, and being prepared to give the requisite practical help.

One of the largest questions, so far as its implications go in the direction of morals as they come into relation with Medicine, is that termed birth control. Despite the fact that lay interest and inquiry are both awake and pressing on this subject, medical opinion is strangely discordant and ill-formed. The majority of medical men and women still begin practice with no instruction in contraceptive methods—a startling anachronism when we remember that memoranda have been issued to public authorities by the Ministry of Health encouraging the formation of birth control clinics and the giving of medical help to women whose lives and health make contraception desirable. In private practice patients not seldom complain that their doctors fail to give them the practical help which they have a right to expect. This failure to help does not seem to be due to the doctor holding views that run counter to the principle involved, but to ignorance of methods and technique applicable to particular cases. Surely this defect should be remedied without delay.

It would be lamentable if the moral fabric of society became definitely formed in this matter yet medicine failed to give the guidance which it alone can give. Or is the position after all this—that medicine itself offers a resistance because it is still influenced by that body of religious doctrine from the dominance of which, though stalwart disciples of its art and science have delivered it here and there from time to time, it has never got quite free? Are we worried by the responsibility of helping men and women to live full lives and yet arrange that bringing children into the world shall be by design and not by accident? Do we think that such help may encourage extra-marital sex relations? That pregnancy should be regarded as the only, or the chief, deterrent to illicit intercourse is a terrible indictment against individual idealism on the one hand, and against the aims of social reform on the other. May we not hope that most thinking people realise that for a man to be "faithful to his future wife" not only makes the "happy husband," but provides the basis of the fullest life both for the individual and the race?

If there be lacking the dynamic element provided by freedom of choice as between good and evil, there is also lacking the chief incentive to progress, and we are put back once more to an era in our evolution even earlier than the garden of Eden. Morality based upon fear of penalties is entirely a static affair, and was doubtless of service at the beginning of human progress. Surely we are ready for a harder lesson than this. Increased control in the sphere of sex, like increased control elsewhere, is an inevitable result of the ceaseless probings of science. That this increased control may be used for ill as well as for good is a general, and not a particular, result of our development. True, as Emerson says,

"Very few of our race can be said to be yet finished men. We still carry sticking to us some remains of the preceding inferior quadruped organisation." But "the age of the quadruped is to go out—the age of the brain and of the heart is to come in. And if we shall read the future of the race . . . and the impulse to the Better in the human being, we shall dare affirm that there is nothing he will not overcome and convert, until at last culture shall absorb the chaos and Gehenna. He will convert the Furies into Muses, and the hells into benefit."

But are we, perhaps, still awaiting the mandate of a completely convinced society? We ought not to wait for this. We ought to be ready, with the fullest assistance so far provided by medical science, to answer in practical and positive fashion the questions put to us by those who, having emerged themselves from the thraldom of sex dominance, honestly and sincerely seek our expert help.

Birth Control; Euthanasia; Eugenics

Our inability to deal constructively with the problem of birth control brings in its wake the nemesis of that social evil—or to those who consider birth control itself an evil, that worse evil—abortion. Here is another matter that cries out for our full examination and advice. The anomaly that allows the well-to-do to get rid of the unwanted child before it is born without danger to life and to reputation, yet denies such relief to the poor, is a stigma to which society is at last awakening. We shall be asked to assist in removing this anomaly, and we must be ready with our reply.

So much for the relations between medicine and the effort towards greater deliberation in respect of the entry of human life into the world. What of the relations between medicine and the deliberate termination of life? The subject of Euthanasia is an old and a recurring one. We are likely to hear more of it in the immediate future. To many who discuss it the problem seems simple, but to us who are brought in daily contact with the facts there is perhaps no problem more difficult. Whose life should be terminated? And by whose decision? At what level of congenital defects, whether physical or mental, should the cleavage come? What diseases are to be regarded as incurable and at what stages in them should the cup of Lethe be drunk? Is the patient's judgment to be relied upon, warped as it so often is, whether by his malady or by his treatment? How can we know that his mood is permanent? So few moods are. More subtle still is that need to distinguish between the calculated decision of a man's intelligence and the cry of strained emotion for relief. An exhortation to preserve his morale, to play the man, the force of our own personality in enabling him to win through—these are not the least of our functions as doctors. They are based upon an old-fashioned virtue, but nature has provided no other by which the last enemy may be faced. It remains to be seen if we are to be asked to relieve some of out patients of this grim fight altogether. Meantime we must go through with this, the hardest of all our tasks, with patience and with resource, even though we get no gratitude, but

> ". . . . he hates him
> That would upon the rack of this tough world
> Stretch him out longer."

But there is another aspect of this problem. We must recognise the fact that this request to end suffering by ending life is not always the cry of a spirit stricken past endurance, but rather the dramatic demand of someone whose patience, never too good, is now exhausted. When such a one clamours for an overdose of morphia, I am prone to say, "I would give it to you if I were sure that you would not change your mind half an hour later." Lastly, when the demand to end life is made on behalf of someone else, it is often not the patient but the patient's friends who cannot stand the strain. "Doctor, you must end this agony!" said a woman to me recently, and my reply, "Do you mean yours or your husband's?" brought home to her, if rather sharply, the real position. The inalienable right of another person to live, if he so desires, had been entirely forgotten. "I am sure he does not want to live" may well mean "I do not think I can possibly see him suffering any longer."

These are some of the considerations which it is our duty to advance when we are approached by laymen who believe that the institution of Euthanasia of the direct kind would be a benefit to mankind. In my own judgment this is the one subject upon which, though our experience should be available to guide the decisions of others, we ought not to express strong views. Our whole training and outlook are directed towards the prolongation of life and the relief of pain, physical and mental. True, we must distinguish between prolongation of life and prolongation of the act of dying, but having done that I think we should leave the larger decision to the developing good sense and judgment of the community, whose servants in such a matter we really are.

The Eugenics movement is one which must necessarily interest us greatly. But so long as we know so little concerning the laws which govern heredity there is not much of immediate importance to submit to us. Always remembering, however, that the problem of birth control is chiefly an eugenic affair, and a very important one. But one practical issue in this field has already arrived and concerning it medicine ought to take a leading part. I refer to voluntary sterilisation. The Brock Report deserves the most careful study by all of us. Whilst not advocating compulsory sterilisation, and so disarming those who fear any infringement of the liberty of the subject, it does advocate the use of the principle in certain selected cases on a purely voluntary basis.

There are other matters. There is the drink problem, there are important questions in regard to food, there is industrial fatigue. And if I speak of noise I risk the charge of using this chair to propagandise. But that is only because the subject is topical. It has seemed to some of us a duty to warn the public against an evil of which they were themselves but dimly aware. Fortified by resolutions from the Royal College of Physicians and the British Medical Association we are endeavouring to stir society to save itself from noise that is needless and preventable. We want the support of all our colleagues.

Solidarity of View

When a patient seeks guidance in relation to his health, an aloofness on the doctor's part from the background of the sick man's life—his work, his habits, his home relations, his ambitions, his fears, his joys, and his sorrows—cramps very considerably the power to help. It is only through a knowledge of his character that we can hope to save him. And although this principle may not extend to certain very limited, and somewhat trivial, complaints, there are very few patients who come to us to whom it does not apply. Likewise the aloofness of medicine from questions that affect various social groups, or society in general, and ultimately determine their welfare and happiness, is to be regretted for the same

reason. Morals, in the sense I am using the term, are constantly changing. Medicine has only two alternatives in regard to this changing design for living: it can guide and even to some extent control those elements in the mosaic which concern our art and science, or we can remain detached and let society take charge of itself.

If—as I think is good, indeed our duty to our fellows—we adopt the former alternative, then it is essential that examination of these elements, and guidance concerning them, be undertaken by representative bodies amongst us, rather than merely by individuals. Solidarity of opinion is much more useful than the expression of personal views. The limitations imposed upon the individual by the traditions of Medicine are severe. And rightly so. In the first place, no amount of publicity of itself confers prestige upon the doctor, though it is perhaps wise to admit that, in these days, prestige cannot be attained without some degree of publicity. Then again, no one of us, however expert in his own sphere, may take upon himself the responsibility of standing for the general body of medical opinion; indeed, in respect of the things I am now considering, the very fact that a man is expert may be a danger.

It is to his colleagues assembled in council that the individual, stirred to a protest or to a reform, should come in the first instance, and lay before them the case which, he is convinced, demands study and an expression of opinion. Convinced himself, he is not likely to fail in convincing them, if his case is a good one. He can thus secure the powerful aid of their corporate influence. And so it should be with matters submitted by various sections of the public, or by Government—for even Government sometimes, and quite sincerely, seeks the way of salvation. It is to representative and authoritative bodies inside medicine, and not to individuals, that these inquiries should be directed for guidance.

To what representative and authoritative bodies? Medicine has many societies and institutions within its boundaries. Our own Society, except sometimes on evenings like the present, is appropriately engaged in purely academic discussions. Its vigorous offshoot, the Royal Society of Medicine, exists for a similar purpose. The British Medical Association is a body most admirably suited to guard the status and the amenities of its vast membership of doctors. This function being apparent and accepted, it is quite reasonable that it should be suspect when matters of public interest are being ventilated. True, in the last analysis the public interest and the interest of the doctors are identical, but this last analysis must not be assumed as being made by those who are vitally concerned in the direction of social morals.

But, say some, this is just the sort of thing which might be adequately undertaken by certain health societies which have upon their committees both doctors and laymen. I will say at once that, in the discussion of medical topics I distrust such mixed bodies thoroughly. How can folk confer with any hope of a helpful issue if they do not speak the same language? Remain the three Colleges. These are strong bodies, representative and possessed of power. Together they might voice a body of opinion on any question arising within their walls or submitted to them from outside, and no impeachment on the ground of bias or parochialism could possibly be advanced. Against the Royal College of Physicians there was formerly lodged the reproach that it isolated itself from important outside affairs which cried aloud for the guidance of medicine. The stigma was not unmerited. The present President is to be congratulated upon the efforts he has made to remove this reproach. His invitation to discuss certain matters of general interest to the public in comitia shows that he is alive to one of the chief functions of the College, and the setting up of a committee whose sole reference is to keep the College in touch with outside affairs which have medical bearings is a most laudable action. The recent decision of the Presidents of the two older Colleges to discuss disciplinary matters and penal cases in joint council is an advance in another and equally important direction.

For whilst individually the Colleges are strong, they would more than treble their strength, and their influence with the public, if the liaison between them were closer than it is. Indeed, apart from acting in concert convening examinations, the liaison scarcely exists. At present there are risks of divergence of opinion and there is duplication of discussion. A closer union is much to be desired. Has no one yet visualised an Academy of Medicine in this country, of which the Colleges are the main pillars?

Sanctity of Moral Opinion

I must not try your patience further. But lest, even now, I may not have made clear what I mean by these "morals" with which I believe Medicine to be irrevocably and intimately bound up, let me, in closing, quote again from that scholar and physician, Clifford Allbutt, himself one of the greatest humanists our profession has produced. Speaking of the sanctity of the moral system by which society exists he says: "Yet nevertheless, as the generations of men change, and as knowledge increases, men see from new points of view: and thus, whilst for some the reigning vision retains its apparent solidity, for others its rays are broken or dissolved.... For every provisional synthesis then, the time must come when the apparition of truth can no longer command united allegiance, and criterions begin to encroach upon sanctions.

In the Middle Ages, the ascetic contempt for the body—partly Stoic, chiefly oriental— . . . hid from the physician the very gates of the city into which he would enter." But "if a social discipline and fruition are to be renewed and enlarged it must be upon a new synthesis as laborious and ardent as the former, and more true . . . Swiftness and strength come of union of wills and singleness of heart rather than of wisdom."

ROYAL WEST SUSSEX HOSPITAL.—On Oct. 1st the governors of this hospital approved, in principle, of a scheme to build a maternity block on land adjoining the institution. The cost of the new block is estimated at £12,710. The governors' conditions are that the West Sussex county council shall pay an agreed sum towards the capital cost, and also maintain five of the ten beds. It is estimated that the block will serve a population of 85,000 in the Bognor Regis, Chichester, Petworth, and Midhurst areas. An address on the need of maternity services was given by Mr. Eardley Holland, of the London Hospital, who said that the scheme was an attempt to bring about further coöperation between the voluntary system of hospitals and the public or county council system. Though some people seemed to think that these two were rival systems it was not so; both were necessary, and both did their own work in their own way. In maternity work they could help each other. Mr. Holland commented on the fact that in the Royal West Sussex Hospital as in almost every general hospital in the country the obstetric department was the last started. There seemed to have been a general lag in midwifery, which was due not so much to lack of knowledge as to failure to put knowledge into use.

THE RATIONAL ASSESSMENT OF RENAL DAMAGE

By CUTHBERT LESLIE COPE, D.M. Oxon., M.R.C.P. Lond.

SENIOR BEIT MEMORIAL MEDICAL RESEARCH FELLOW

THE search for the ideal test of renal function still continues, after the passage of a quarter of a century, to provide ample opportunity for the expression of individual views. The main reason for this lack of progress towards agreement is undoubtedly the inadequacy of our knowledge of the processes, both physiological and pathological, which are going on in the kidney. But to some extent also it appears to be due to an inadequate appreciation of the necessary limitations of any such test. Prognosis must be based on the summing-up of a large number of variables of which the functional efficiency of the kidney at any given time is only one. The course of the disease process in nephritis cannot be predicted from a knowledge of the efficiency of the kidney at any one time, or even from a knowledge of the rate at which this efficiency is changing over a given period. Furthermore, individual patients differ in the way they withstand a given degree of renal impairment. The constitutional variables causing such differences are not within the scope of any renal function test to assess, but can only be gauged by the clinician as a result of prolonged empirical experience. Because of this it is unfair to put too much responsibility on tests of this kind.

It is very evident, moreover, that some are more useful than others; and if all of them were reliably estimating what they claim to estimate, this difference in their value would be somewhat surprising. It must mean either that they do not all satisfactorily estimate the functions with which they deal, or else that some functions are more affected than others by the nephritic process, and some are more important than others in providing the information on which to base diagnosis and prognosis. Which explanation is correct we do not at present know. All that should be asked of the renal function test is that it reliably estimate the particular function with which it is concerned.

Criteria by which to judge how far it does so are difficult to obtain, and this is another problem which complicates the search for a reliable test. It cannot at present be safely assumed that all the many partial functions of the kidney are equally depressed by a given renal lesion. Hence the fact that a comparative study of any two of these functions reveals an apparent divergence cannot be taken as evidence that one of them is yielding fallacious results. But if, on the other hand, two or more tests are found to indicate an equal degree of inefficiency in the nephritic kidney, then this fact may reasonably be taken as evidence that they are reliably estimating the efficiency of the kidney in respect of the functions with which they deal.

In relation to the enormous amount of work which has been carried out on renal function tests, the number of recorded comparisons between different types of test is surprisingly small. In those that have been made little agreement, except in the roughest way, between the various tests is usually found, and no clue is obtained as to whether a function is being reliably estimated or whether the results are practically meaningless. There does exist, however, a small group of tests which agree in their estimate of the degree of impairment of efficiency in the nephritic kidney, and it is this group which I propose to consider here, since I believe that they lay claim to more serious consideration than any of the others.

THE GROUP OF CLEARANCE TESTS

Of this group the most important is the urea-clearance test which is popular in America and is now beginning to attract interest in this country. The other members of the group are less well known, and by reason of their greater technical difficulty are unsuitable and indeed unnecessary for routine clinical investigations. But this unsuitability in no way diminishes their theoretical importance.

Into a detailed explanation of the term "clearance" I do not propose to enter. It is sufficient for present purposes to say that by a "clearance" is meant the rate of excretion of a substance (expressed in milligrammes per unit of time) divided by the average concentration of the substance in the blood plasma during that time (expressed as milligrammes per cubic centimetre). The application of the name "clearance" to this ratio depends on the following considerations.[1]

It can easily be shown mathematically that the ratio represents a volume divided by a time, and that it represents in fact that volume of blood which would contain an amount of the substance under consideration equal to the quantity excreted in unit time in the urine. If now we assume, merely for convenience, that the blood flowing through the kidney is completely freed or "cleared" of this substance before leaving by the renal vein, then the clearance ratio represents that volume of blood which would be so "cleared" of this substance by the kidney. Whether the unit of time be taken as a minute or an hour does not in the least affect the essential conception of the clearance.

Numerous accounts of the clearance are now available, especially in reference to urea, and the methods for its determination have been widely published.[2 3 4]

The group of function tests which we are considering concerns itself with the excretion of several substances of widely different chemical nature, but it appears that they all have one property in common. For each of them the rate of excretion in the urine is, under proper conditions, directly proportional to the blood concentration. From this it follows that the ratio of excretion-rate to blood concentration (the clearance) is a figure independent of the actual concentration in the blood over a wide range. It is this figure which is believed to indicate the excretory efficiency of the kidney towards the substance under consideration.

THE UREA CLEARANCE

It was from a detailed investigation by Addis [1] of the phenomena presented by the excretion of urea that the conception of a clearance emerged. Addis could detect no regularity in the excretion of urea under ordinary circumstances, but if a large drink of water was taken to establish a diuresis, and if urea was also ingested to raise the blood-urea level, then it was found that the rate of excretion of urea became directly proportional to the blood concentration, and independent of the rate of urine flow provided that this was large. In other words, a constant value for the urea clearance could be obtained which was independent both of actual urine volume and of blood-urea.

In the need for observing these conditions the case of urea is more complex than that of other members of the group, for which the production of a large

diuresis is probably unnecessary to demonstrate the linear relation between excretion-rate and blood concentration.

That the urea clearance obtained under these conditions was indicating, at least approximately, the functional activity of the kidney, was early rendered highly probable by a number of facts elicited by Addis and others. It was found that in cases of nephritis of increasing clinical severity the value of the urea clearance was progressively reduced. It was further shown that in mammals of different size, and even of different species, the value of the clearance varied with the weight of the kidney, and that if one kidney was removed at operation the value of the clearance was almost halved. (But not quite halved because the remaining kidney increased its activity to compensate for the loss of its fellow.) From these facts the conclusion was drawn by Addis that the urea clearance was a real measure of the *mass* of functioning renal tissue.

Although this conclusion was apparently justified in the case of healthy normal renal tissue, it is not necessarily true in disease. For the introduction of the word "mass" implies the making of the as yet quite unproved assumption that a given *mass* of renal tissue, if actively secreting at all, will excrete urea with the same efficiency whether healthy or diseased. But this possibly false assumption only concerns the introduction of the word "mass" and in no way affects the more general conclusion that the urea-clearance test is a definite expression of the urea-excreting efficiency of the kidney.

In the interests of simplicity, and in order to popularise the urea-clearance test, Van Slyke has attempted to escape from the more rigid conditions for the test prescribed by Addis, and has introduced his own modifications (the standard and the maximum urea clearances) in which no urea is given by mouth and no attempt made to evoke an abnormally large diuresis.[3] It is in this simplified form that the test appears to be under trial in this country.

Van Slyke justifies its use by the claim that in practice it yields the same information as is obtained when urea is given. In this his experience was at variance with that of Addis some years earlier, but it must be confessed that when working in Van Slyke's department I also was impressed by the apparent similarity of the results of the two methods. In spite of this, however, there are indications that the simplifications introduced by Van Slyke may sometimes involve a sacrifice of reliability. Fowweather for instance [4] has recently pointed out that when no urea is given very variable results may be obtained even in the normal subject, and in this his findings confirm the original observations of Addis. Again, a comparison of the urea clearance with another member of this group of function tests, the creatinine clearance, points to the same conclusion.

It has been shown that creatinine, like urea, is excreted at a rate which is directly proportional to the plasma creatinine concentration, both in man [5] and animals.[7] The creatinine clearance is determined in precisely the same way as the urea clearance, being the rate of excretion of creatinine divided by the plasma concentration. The value thus determined is 2·5 to 3·0 times as great as the urea clearance. If now, as a result of a nephritic process, the urea clearance becomes reduced to say 30 per cent. of the healthy normal figure, then it will be found in the great majority of cases that the creatinine clearance is also reduced to about 30 per cent. of the normal figure for that clearance. We have in fact two independent renal function tests which agree in their estimates of the degree of renal damage.[5 6] No such agreement has so far been demonstrated between the creatinine clearance and the simplified urea-clearance tests of Van Slyke, carried out in the absence of diuresis or a raised blood-urea. On the contrary, a long series of comparisons made in all types of nephritis by Hok Lan Ong [8] failed to reveal any parallelism. I believe this failure to be because the original conditions prescribed by Addis—viz., diuresis and a raised blood-urea—were not adhered to.

Addis's explanation of the greater constancy of the results obtained under his conditions is that the raised blood-urea and the diuresis combine to produce in the kidney a condition of load, stimulating it to exert its maximum effort. The encouragement of maximum effort is the basis of the great majority of tests of organ function. It is unreasonable to judge of the strength of a muscle from the power of its contraction when it is not exerting itself fully. Nor can the efficiency of a diseased myocardium be gauged from observation of the patient at rest in bed, unless of course it is so low that even at rest it cannot meet the relatively small circulatory demands made on it. Exercise must be given to reveal all but the most advanced stages of the diminished exercise tolerance on which we base our estimate of the myocardial efficiency.

The criticism has been brought against the urea-clearance test that successive determinations in the same person do not give the same results. It was precisely for the purpose of reducing such variations that Addis recommended his conditions of diuresis and raised blood-urea. If they are not observed then a greater degree of variation must be expected. But even if they are, the constancy of results is admittedly not absolute, especially in healthy subjects. Nor is this surprising, for it is almost certain that the kidney, like other organs, exhibits real variations in its activity.

These variations are almost certainly very largely referable to changes in the actual number of glomeruli and tubules which are active at any given time. There is plenty of evidence that at times in the normal healthy kidney considerable numbers of glomeruli may be dormant, just as in muscle tissue during rest large numbers of the capillaries are closed. When either muscle or kidney is stimulated to greater effort these capillaries between the muscle-fibres or in the glomerular tufts are opened up in increasing numbers. It is believed that raising the blood-urea can also bring about this restoration of dormant glomeruli to activity, bringing into use almost the whole number available. This action of urea has been repeatedly observed directly in frogs. It is quite possible that after urea has been given for the determination of the urea clearance the opening-up of the resting glomeruli is not quite complete, and this would explain the observed small variations in the urea clearance in a given individual. But if no urea has been given and the blood-urea is not above normal limits, then 40 per cent. or more of the available glomeruli may be closed, and the test carried out under such conditions will reveal an apparent functional efficiency much below that of which the kidney is actually capable. This probably accounts for the much greater variations observed in the urea clearance when no extra urea is given.

In advanced nephritis the blood-urea is already raised above the normal level and it is unnecessary to give the patients extra urea by mouth. Accordingly, we find much more constant results in such subjects.

The kidney is constantly under load, and those parts which are still capable of functioning are continually exerting their maximum effort in an attempt to remove metabolic waste products. In the inadequate nephritic kidney there are no periods of relaxation of effort, and it is no more necessary to feed extra urea in these cases in order to obtain a reliable figure for the urea clearance than it is necessary to exercise a man with advanced heart failure in order to reveal his lowered exercise tolerance.

Another objection brought against the test is that it necessitates two analyses. This objection can scarcely be considered a serious one, since this test when properly carried out provides, I believe, as much information as the routine blood-urea and urine analyses which are more commonly performed separately in this country. Furthermore, a simple method is available whereby the urea clearance can be measured by a single procedure without its being essential to determine the actual urea concentration of either blood or urine.[6,10] This method, which is colorimetric, is only approximate, but is probably accurate enough for general clinical purposes.

A third objection is that the results depend for their reliability on the completeness with which the bladder is emptied. This is true, but as a source of error can usually be reduced to unimportance if a large diuresis can be established. Where such a diuresis cannot be provoked, as in many cases of hydræmic nephritis, or in patients with residual urine due to an enlarged prostate, it is probably wise to employ catheterisation if accuracy of result is desired.

THE CREATININE CLEARANCE

The creatinine clearance, like the urea clearance, has been extensively used for clinical purposes, particularly in Scandinavia, where it has been popularised by Rehberg.[11] As has already been pointed out, its estimate of the renal efficiency agrees well with that of the urea clearance. Thus since the information which it gives is essentially the same as the urea clearance, no special advantage is gained by its use. It is of value for confirming the information yielded by the urea clearance when this is required. The fact that facilities for the estimation of urea are more readily available in this country than those for the accurate estimation of creatinine gives the urea test a decided advantage, which is further increased by the considerably greater expense of the creatinine-clearance test.

It is claimed by Rehberg that this test provides a measure of the volume of fluid filtered through the glomeruli, but there is no reliable evidence that this is so, and any conclusions based on such an assumption are unjustifiable.

The excretion of creatinine is apparently not affected to nearly the same extent as is urea by restriction of the volume of urine. It is possible, therefore, that in cases in which no diuresis can be produced the creatinine clearance may be more useful than the urea clearance.

OTHER CLEARANCE TESTS

The remaining function tests of this group are harder to perform, mainly because of difficulties of analysis, and are therefore unlikely to be very helpful for routine clinical purposes.

The pentose sugar *xylose*, when taken in sufficient quantity by mouth, appears in the blood in a concentration high enough for accurate analysis, and is excreted rapidly in the urine. During its excretion a value for the xylose clearance can be obtained in the usual way. There is indirect evidence that the excretion-rate of this substance also is directly proportional to the blood concentration. Hence, as with urea and creatinine, the value obtained for the clearance—i.e., the estimate of renal efficiency—is independent of the actual blood concentration of the substance. It has recently been found that the xylose clearance also agrees with the urea and creatinine clearances in its estimate of renal damage in nephritics.[8]

It is highly probable that the same will be shown to be true of cane sugar or *sucrose*. Owing to its decomposition by the digestive juices of the alimentary canal, this sugar must be introduced into the blood stream either directly or by subcutaneous injection. When this is done the sugar is excreted rapidly in the urine and a sucrose clearance can be determined. In normal animals [12] and in healthy human beings [13] the sucrose clearance agrees so closely with the xylose clearance that they are claimed by some workers to be identical. Sucrose also has been shown, in rabbits at least, to be excreted at a rate proportional to its blood concentration.[7]

There remains one other clearance test which belongs to this group, and this concerns *glucose*. Injection of the drug phloridzin causes glucose to appear in the urine, producing the well-known phloridzin diabetes. Increasing doses of this drug cause increasing glycosuria up to a maximum rate of excretion above which no further increase occurs. In this condition of full phloridzinisation a comparison of the rate of glucose excretion with the blood-sugar gives a figure for the glucose clearance. This glucose clearance is found to be identical, within the limits of experimental error (2 or 3 per cent.), with the sucrose and xylose clearances. This identity has been shown in dogs,[13] in rabbits,[7] and in human beings,[13] but so far no observations have been reported in the nephritic subject.

RELIABILITY OF CLEARANCE TESTS

The fact that clearance tests can be carried out with a number of different substances, and that the estimates of renal efficiency they provide are in much closer agreement one with another than are estimates obtained with any other pair of function tests, is strong evidence that a real estimate of at any rate one of the partial functions of the kidney is being made.

The substances concerned in these tests all appear to be treated in the body as pure waste products requiring immediate excretion. (In phloridzin diabetes glucose also is certainly excreted as though it were a foreign substance not required by the body, and the organism suffers in consequence.) The clearance tests constituting this group are thus measuring the efficiency of the kidney in eliminating waste products. The body, having no further interest in these substances, exerts no specific control over individual ones, although it can probably control the rate of excretion of the group as a whole by influencing the general secretory activity of the kidney. In this respect the members of the group differ markedly from many other substances.

There can be little doubt that the excretion of water, of chloride, or of phosphate, for instance, is subject to controlling influences of whose precise nature we are still ignorant. With these substances therefore it is difficult to detect any clear relation between the rate of excretion and the blood concentration or anything else, and we are not in a position to say that their abnormal excretion is referable solely to abnormality of the kidney; the fault may lie in the controlling influences exerted by other organs. In the existence of such extrarenal influences we have plenty of reason to believe, but there is no reason to suspect that they have more than a minor effect on the excretion of urea, creatinine, or the foreign sugars referred to.

We have an instance of the effect of such undetermined factors in the case of glucose excretion. In the patient with diabetes mellitus, the relation between blood-sugar concentration and rate of glucose excretion is a highly

complex one which is not yet fully understood. But in the fully phloridzinised subject it is relatively simple, and of the type which characterises other members of the group. In the former case we have to contend with complicating factors which may or may not be referable to the kidney directly. In the latter, such uncontrollable variables are inhibited by the drug phloridzin, and glucose becomes subject to the same laws of excretion as are found with other members of the group.

This same complexity of phenomena is found in the excretion of many other substances. The water and chloride retention encountered in the hydræmic types of nephritis, for instance, is not necessarily attributable to the kidney, but may be due to the fact that the œdematous tissues in some way prevent the water and chloride from being made accessible for excretion. In such nephritics it is not infrequently possible to show that the ability to excrete urea and creatinine is still unimpaired. If in such a case a water excretion test reveals an impaired excretion, it is not at present justifiable to interpret this as evidence of impaired renal function.

Considerations such as these raise the question of how far we are justified in accepting the results of many other renal function tests as a definite measure of renal damage. Much more evidence than is at present available must be obtained before we can safely do so. I do not for one moment suggest that many of these tests are not of great value in clinical practice when employed in the light of empirical experience. They are frequently excellent *qualitative* indicators of renal damage, but so far as I am aware the clearance tests are the only ones which can at present make any claim to be at all *quantitative*. And the reason that they can be made quantitative is that they deal with substances whose excretion is not controlled to any great extent by other factors than the blood concentration.

RELATION TO BLOOD-UREA

I have pointed out that this group of function tests appears definitely to estimate the excretory efficiency of the kidney for a variety of waste products. It is generally accepted that this is the function of the kidney concerning which information is most valuable in the investigation of nephritis. It is failure of this function which brings about retention in the blood of urea and other metabolites. Estimations of these substances, especially urea, in the blood are widely used to provide an index of the intensity of renal damage in cases of relative advanced nephritis. For this purpose they cannot be entirely satisfactory. In the first place the blood-urea concentration is determined not only by the excretory power of the kidney, but also by the rate of formation of urea in the body. Because of this, wide variations in the blood-urea of a nephritic can easily be brought about simply by changing the amount of protein in the diet. Furthermore, since the kidney has a reserve excretory power which is normally only called into play during periods of stress, this reserve can be drawn upon to compensate for the damage caused by a nephritic lesion. And because of this urea-retention does not begin until all available reserves of power have been called up. This has been very prettily demonstrated by Van Slyke, who showed that the efficiency of the kidney, as judged by the urea clearance, may be reduced to half the normal, or even lower before any rise of the blood-urea or the blood creatinine above normal limits is detectable.[9]

The urea clearance is thus a very much more sensitive test than the blood-urea alone.

CONCLUSION

The blood-urea has already proved its value as a routine test in clinical work, but I suggest that the urea-clearance test is likely to prove even more useful. It may be freely admitted that the renal function test most helpful to the individual clinician is as a rule the one in whose interpretation he has most experience. Experience of the urea-clearance test in this country is as yet relatively small, but there is strong reason for believing that its interpretation is much simpler than that of those at present in use, and that when it is better known it will be of more real value than any other test which we have. Apart from its greater simplicity of interpretation, it has the advantage that it is estimating something definite and something referable to the kidney itself.

SUMMARY

The essential for any renal function test is that it should reliably estimate the function with which it deals; and for the great majority of such tests there is no evidence that they fulfil this requirement. There is, however, a group of tests, of which the urea-clearance test is the most important, which agree with each other in their estimates of renal damage; and their agreement constitutes strong evidence that the renal efficiency in eliminating waste products is being reliably indicated by them. The urea-clearance test belongs to this group only when the clearance is measured during diuresis and with a raised blood-urea. For reliable results therefore these conditions should be observed. The urea clearance is then a much more sensitive indicator of renal function than the blood-urea alone. Indeed it appears to be the most rational one which we at present possess.

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A CASE OF SIMMONDS'S SYNDROME

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In 1914 Simmonds described the syndrome that goes by his name; the manifestation of deficiency of the anterior lobe of the pituitary body. Many cases of it have since been described, chiefly in the continental literature, and there have been reviews by Graubner and Silver, as well as good text-book accounts by Falta and Berblinger. The following case is reported because the manner in which the pituitary was damaged is possibly unique, and

because the correlation between the clinical and pathological findings is unusually complete.

CLINICAL DESCRIPTION

History.—The patient was a hospital waiter, aged 50, and his illness began suddenly 16 weeks before his admission to hospital. He was married and had had two children.

Thirty years previously he had suffered an injury to his nose which had been blocked ever since. His complexion had always been pale, and the skin of his hands, but not elsewhere, had always been dry. For four or five years he had noticed difficulty in reading print with his left eye. For three months before the illness began he put on weight rapidly, about 1½ st. During all this time he was sexually potent. Venereal disease was denied.

One night he felt as if he were developing a cold and took a "toddy" on going to bed. Next morning, while waiting at table, he suddenly felt dizzy, weak, and ill, and vomited a little. He was examined by a casualty officer, who found no fever and no abnormal signs and sent him home. He walked home, then collapsed and was put to bed. For three days he was "semi-conscious," too weak to give any attention to his surroundings. The panel doctor attending him found that his temperature was 105° F. After three days he vomited, then began to recover, but found that he had lost the sight of his left eye. He had no pain, no rigor, no sweating, no paralysis, and no abnormal thirst, either at this time or later.

Photograph of the patient.

After three weeks in bed he got up, but the same day he felt worse again, shivered and could not get warm, and went to bed for another two or three weeks. He complained only of loss of appetite and weakness. Nine weeks after the onset he came to the out-patient department complaining of weakness, headache, and breathlessness on exertion. Routine examination showed nothing abnormal except pallor, a small-volume pulse, and impaired vision of the left eye (visual acuity, corrected: R, 6/9; L, 6/60). Fourteen weeks after the onset he attempted to work again, but was too weak to do so. Sixteen weeks after the onset he was admitted to hospital, having lost in that time approximately all the weight he had gained in the previous three months.

CLINICAL EXAMINATION

On admission he was found to be a slightly wasted, normally proportioned man (height, 5 ft. 4 in.; weight, 8 st. 5 lb.; standard weight, 9 st. 12 lb.). His intelligence was moderate; speech, comprehension, and movement were slow, but his mentality was otherwise normal. The voice was thick from nasal obstruction.

The skin of the face and ears was pale, sallow, very dry, and somewhat wrinkled, with a desquamation of fine dry scales. The tip of the nose was quite smooth and waxy (see Figure). The skin elsewhere was pale and dry without wrinkling or desquamation. There was no pigmentation of skin or mucous membranes. The hair was dark and abundant on the head, the eyebrows, and the legs; scanty on the chin, very scanty in the right axilla, and absent in the left; long and scanty in the pubic region, and practically absent above the mons. The nails were normal.

There was no jaundice, cyanosis, clubbing, or œdema, and no palpable lymph glands. The tongue was large, clean, and rather smooth. Some teeth were missing, and there was a moderate degree of gingivitis and pyorrhœa. The tonsils were just visible and clean. There were no abnormal signs in chest and abdomen, except that the heart sounds were faint. The blood pressure, measured with a mercury-column instrument, was 105/80 mm. Hg.

Penis and scrotum were rather small. The right testicle lay at the lower end of the inguinal canal, the left in the scrotum; testicular sensation was present but subnormal.

The patient had lost the sensation of smell. The left eye was almost blind. The pupils were equal and circular, contracting with accommodation, and on illumination of the right retina but not of the left. Both eyeballs were slightly sunken; their movements were normal with no nystagmus. The right ear was slightly deaf, hearing by bone conduction better than by air conduction. No other abnormality was found in the nervous system.

The urine was normal. The measured daily fluid intake was 670–1220 c.cm., output 620–1145 c.cm.

SPECIAL EXAMINATIONS

Eyes (Mr. Charles Goulden).—The left retina showed a macular choroiditis and almost complete (secondary) optic atrophy; visual acuity was reduced to the bare perception of light and dark. The right retina showed evidence of old retinitis, with slight optic atrophy; visual acuity was slightly less than 6/6, and there was a defect in the upper and outer part of the visual field, identical for 1/330 and 10/330, and corresponding to the chief area of old retinitis.

Nose (Mr. Norman Patterson).—The septum was deflected to the right; there were polypi in the left ethmoid region, and dry muco-pus in the left side of the nose.

X ray examination (Dr. M. H. Jupe).—The sella turcica was definitely enlarged; only one posterior clinoid process was visible and it was very thin. There was a slight loss of translucency in the right middle ethmoid cells. The chest and the stomach (barium) were normal.

LABORATORY EXAMINATIONS

Wassermann reaction: negative.

Blood count: red cells, 5,600,000; hæmoglobin (Dare), 78 per cent.; white cells, 6800 (54 per cent. polymorphonuclears, 2 per cent. eosinophils, 28 per cent. small lymphocytes, 12 per cent. large lymphocytes, 4 per cent. large hyalines).

Cerebro-spinal fluid: 12 white cells, mostly lymphocytes, per c.mm.; 0·05 per cent. protein; Wassermann reaction negative.

Blood-sugar (Folin-Wu) during a day on normal diet (grammes per 100 c.cm.): 10.20 A.M., 0·077; 11.40 A.M., 0·087; 1.30 P.M., 0·064; 4 P.M., 0·085.

The sugar tolerance was as follows:—

Fasting blood-sugar	0·067%	0·067%
Glucose by mouth	50 g.	100 g.
B.S. after ½ hour	0·069%	0·095%
B.S. after 1 hour	0·071%	0·090%
B.S. after 2 hours	0·095%	0·080%

Basal metabolic rate (Douglas bag method): + 12, + 8.

PROGRESS

For the first three weeks in hospital the patient's condition remained stationary, with temperature (axillary) 96°–97° F., pulse-rate 60–80, and blood pressure between 95/75 and 85/65 mm. Hg. Then he had a short attack of sore-throat (ward infection) with fever, which occasioned the labial herpes seen in the photograph. From this time onwards he was given 20 g. glucose in orange juice four-hourly.

For the next five weeks he received thyroid extract grs. 3 daily; his condition showed no change. In the ninth week he grew weaker, vomited once every 24 hours, and complained of pain in the right shoulder. His temperature rose to 99° and he had a cough with purulent sputum. There was temporary improvement until the eleventh week, when vomiting, slight pyrexia, and great weakness recurred. He became somewhat dehydrated. His blood pressure fell to 78/54 mm. Extract of supra-

renal cortex (Allen and Hanburys), 5 c.cm. daily by subcutaneous injection, was then given for two weeks, at the end of which time the symptoms gradually improved, though the blood pressure continued to fall and reached 70/48 mm.

Thereafter there was a slow but definite all-round improvement, with a rise of blood pressure to 90/60 mm. In the sixteenth week he was able to get up, and in the twentieth week he was sent to a convalescent home. Lumbar puncture about this time yielded a clear fluid with 2 lymphocytes per c.mm. and 0·07 per cent. protein. His weight fell from 8 st. 5 lb. on admission to 7 st. 5 lb. at the fifteenth week, and had risen to 7 st. 8 lb. when he was discharged.

PATHOLOGICAL EXAMINATION

Five weeks later, or 41 weeks after the onset of the illness, he died in his sleep.

Summary of necropsy (P.M. 319, 1932). Œdema of larynx. Pituitary cachexia (Simmonds's syndrome). Destruction of pituitary body and included adenoma by hæmorrhage, necrosis, and fibrosis.

Great œdema of larynx. Œdema of mucosa of trachea. Subacute inflammatory infiltration of larynx, trachea, and bronchi. Recent hæmorrhage into mucosa of trachea and bronchi. Focal acute hæmorrhagico-purulent pneumonia. Œdema of lungs, especially of right. Fibrous pleural adhesions over postero-inferior border of upper lobe of right lung. Thin clear pleural effusions (74 c.cm. right; 89 c.cm. left). Severe brown atrophy of heart. Moderate general atheroma. Œdema of slightly atheromatous areas of intima of aorta. Slight calcification of media of aorta. Brown atrophy and œdema of liver. Chronic inflammatory infiltration of portal systems in liver. Slight œdema of spleen and kidneys. Chronic inflammation of tip of appendix. Œdema with slight pitting of ankles. Great atrophy of thyroid gland. Abundant lipoid and a brown pigment zone in greatly atrophied cortex of suprarenal bodies. Great atrophy of testicles. A few fibrous adhesions in right tunica vaginalis. Thymus obscured by fatty tissue. No macroscopic abnormality in parathyroid glands and pancreas. Branchial diverticulum of trachea (1·5 by 0·8 cm.) on posterior aspect of trachea in space between fifth and sixth rings. Meckel's diverticulum 212 cm. above cæcum. Considerable phimosis without inflammation. Faint operation scar in skin over right inguinal canal. A few teeth missing. No macroscopic abnormality in bones. A considerably wasted man.

Weights.—Body, 49·5 kg. (height 1·6 m.); heart, 212·6 g.; liver, 1042·5 g.; spleen, 163 g.; kidneys, 248 g.; brain, 1282·8 g.; thyroid gland, 10·5 g.; suprarenal bodies, 3·5 g.; pancreas, 62·8 g.; testes, 18·5 g.

NAKED-EYE EXAMINATION OF CONTENTS OF SKULL

Delicate fibrous adhesions united the dorsal surface of the diaphragma sellæ with the centre of the ventral surface of the optic chiasm and the adjacent part of the left optic tract. The apex of a calcified conical projection (0·7 by 0·3 by 0·25 cm. high) occupied the centre of the diaphragm and was united by fibrous adhesions to the leptomeninges over the anterior communicating artery. The left optic nerve was grey and flattened (transverse section 0·55 by 0·3 cm.). The left border of the right optic nerve (transverse section 0·65 by 0·3 cm.) was similarly altered. The internal carotid arteries, circle of Willis, and main cerebral arteries appeared normal. On the ventral surface of the left anterior cerebral artery, near the left border of the optic chiasm, lay an ill-defined firm nodule (0·4 by 0·25 by 0·2 cm.) of translucent grey and orange-brown tissue. There was gelatinous grey thickening of the surrounding leptomeninges and a thin zone of sub-pial orange staining affected the base of the brain immediately to the left of the optic chiasm. The brain appeared otherwise normal.

The sella turcica was slightly enlarged (2 cm. from side to side by 1·6 cm. from before backwards by 0·8 cm. deep). The dorsum sellæ was thin and brittle. The pituitary stalk was greatly deviated to the right, the centre of the diaphragma sellæ being occupied by the calcified projection already mentioned. After removal and hardening in 4 per cent. formaldehyde the complete contents of the sella turcica, weighing 1·45 g., were divided sagittally into five portions of about equal thickness. With the exception of a sharply defined, central opaque yellowish-brown area (0·8 by 0·5 by about 0·6 cm. from side to side), the mass appeared to be entirely composed of tough grey gelatinous fibrous tissue, profusely flecked and streaked with orange or orange-brown pigment. No trace of tissue resembling the anterior or posterior lobes of the pituitary body could be detected with the naked eye.

MICROSCOPIC EXAMINATION

The five portions of the pituitary mass were embedded in paraffin and examined by serial section. A block from the base of the brain including the optic chiasm, adjacent anterior cerebral arteries, and hypothalamus was similarly treated. Sections at selected intervals were stained with hæmatoxylin and eosin; wherever further elucidation of the histology was required these were supplemented by preparations stained with Weigert's iron hæmatoxylin and van Gieson's mixture, Weigert's fuchsin and neutral red, and Mallory's acid-fuchsin aniline-blue. The other tissues examined were embedded in paraffin and sections were stained with hæmatoxylin and eosin, Weigert's iron hæmatoxylin and van Gieson's mixture, and Weigert's fuchsin and neutral red. A portion of one testicle was cut on the freezing microtome and sections were stained with Scharlach R and hæmatoxylin.

The pituitary mass.—The diaphragma sellæ is fused with the underlying tissue and contains, in its centre and left side, a thin layer of lamellar bone. The ventral end of the pituitary stalk is embedded in fibrous tissue to the right of this area. The pituitary mass consists of dense fibrous tissue in which lie groups of degenerated or necrosed cells. This fibrous tissue is sparsely infiltrated with small lymphocytes and eosinophil and neutrophil leucocytes. A good many macrophages containing golden-brown pigment are scattered throughout it but are most conspicuous in a zone surrounding the central necrotic area described below. The pigment gives a positive Prussian-blue reaction. A few amorphous hæmatoxyphil particles, cholesterin-crystal spaces lined with foreign-body giant cells, and diffuse areas of recent hæmorrhage are also present.

The sharply defined opaque area seen with the naked eye lies slightly to the right of the centre of the pituitary mass and appears under low powers of the microscope as an amorphous, eosinophil collection of debris. Under high powers, however, it is seen to be composed of dead cells, the outlines and arrangement of which are often extraordinarily well preserved. The nuclei are uniform in size and spherical. The cell bodies are in places polygonal, vary in diameter from 8μ to 12μ and are arranged in small acini. In other places they are elongated or pyriform with a long axis of up to 17μ, and sit in single rows like palisades upon longitudinally cut trabeculæ, or radiate round such trabeculæ when cut transversely. The spaces between the acini and the rows of cells are filled with eosinophil debris. In the fibrous tissue to the left of this necrotic area there are occasional minute islands of loosely arranged living cells in acini of irregular shape. The cells are of uniform appearance and resemble the smaller cells in the necrotic area. They are polygonal, with small round deeply pyknotic nuclei and scanty non-granular cytoplasm. These islands become ever larger and more numerous as the left border of the mass is approached and their nuclei here are less pyknotic.

Very few vestiges of tissue resembling normal pituitary anterior lobe are present. The largest is a crescent (up to 0·3 mm. wide) of greatly atrophied cells, including chromophobe and both kinds of chromophil cells, also a few cubical cells forming tubules and suggesting pars intermedia. This crescent lies immediately to the left of the attachment of the stalk. Elsewhere an occasional shrunken acinus of chromophil and chromophobe cells is found in the fibrous tissue, especially in its deeper parts. The posterior lobe is represented by a greatly compressed remnant just behind the crescentic area of anterior lobe cells. This is separated from the attachment of the stalk by fibrous tissue.

Optic chiasm and hypothalamus.—The upper end of the

pituitary stalk appears normal. The nodule of tissue overlying the left anterior cerebral artery is identical in appearance with the islands of living cells lying to the left of the necrotic area in the pituitary mass. The cells infiltrate the meninges slightly and a few groups are found in the proximal end of the left Sylvian fissure. Posteriorly the nodule curves round the lateral border of the artery and comes into contact with the base of the brain, but does not infiltrate it. The periphery of the nodule is crowded with macrophages containing iron pigment. These are also present in the borders of the adjacent brain and in the perivascular sheaths of the left side of the optic chiasm. This part of the optic chiasm also shows a considerable loss of myelin in a Loyez preparation. There is an increased number of astrocytes in the demyelinated areas. In the left supra-optic nucleus many macrophages containing iron are scattered amongst the neurones, which appear well preserved. The right supra-optic and both paraventricular nuclei are unaltered. There is slight chronic leptomeningitis and a little diffuse hæmorrhage around the left anterior cerebral artery. Deep in the substance of the brain, near the anterior commissure, there is conspicuous siderosis of the walls of the vessels, especially on the left. In the same area, on the left, are numerous rounded extracellular particles of about the size of a red corpuscle, or larger, which give a strong Prussian-blue reaction.

Suprarenal body.—In a section taken through the thickest part of one gland the cortex is very narrow, measuring from 0·19 to 0·3 cm. in depth. Further, in this cortex the cells are abnormally sparse. The pigmented cells are usually sharply defined, but are scanty. There are also a few groups of sharply defined cells in the zona glomerulosa and zona fasciculata. These cells are moderately vacuolated. Elsewhere the cells are greatly vacuolated and individual cells can rarely be distinguished; their nuclei are usually pyknotic and are irregularly scattered in an abundant foamy matrix. Many large areas of matrix contain no nuclei. The medulla is relatively bulky, and contains closely packed cells of a great variety of sizes and shapes.

Thyroid gland.—The gland is so atrophied as to be hardly recognisable as thyroid. The inter- and intra-lobular stroma is very abundant and dense, while the parenchyma is relatively very sparse. It consists of small lobular groups of small acini in which the cells are in general very small. The cells line the acini or fill them to a greater or less extent. Under high powers of the microscope the cells are seen to vary considerably in size, and there are occasional examples with giant nuclei. One or two cells with more abundant cytoplasm or small syncytial masses occasionally lie in the lumina. Spheres of colloid are extremely few and small. There are numerous large areas of lymphocytic infiltration.

Testicles.—The tubuli contorti are shrunken, and their lumina are reduced to narrow slits by a hyaline swelling of the collagenous basement membrane. They are usually lined and filled with single rows of cells, occasionally with double or triple rows. There is no trace of spermatogenesis, and the cells are loaded with isotropic fat. In the interstitial tissue are cells containing anisotropic lipoid. They are doubtless interstitial cells. They lie singly or in small groups, but are an inconspicuous feature. There is no fibrosis and no inflammatory infiltration in the relatively abundant, very delicate, interstitial tissue.

Bones.—The costal end of the fourth right rib and a portion of corticalis from the centre of the right femur were decalcified in Müller's fluid for four months, followed by 0·5 per cent. nitric acid in 4 per cent. saline-formaldehyde. In the rib the corticalis is thin and the trabeculæ are somewhat sparse. In the corticalis of the right femur a few Haversian canals are replaced by Haversian spaces. At one end of one such space there is active osteoclastic resorption. The rib and femur therefore show slight osteoporosis, but are otherwise of normal structure.

INTERPRETATION OF PATHOLOGICAL FINDINGS

The preservation of the cells in the central necrotic area of the fibrotic pituitary mass is sufficient to permit the identification of this area as an adenoma. The cells have the size and arrangement that are commonly found in chromophobe adenomas of this gland. This interpretation is supported macroscopically by the enlargement of the sella turcica and by the displacement of the pituitary stalk. It is confirmed microscopically by the presence in the left side of the pituitary mass and in the leptomeninges round the left anterior cerebral artery of certain islands of living cells, which closely resemble areas of chromophobe adenoma. These islands appear to be surviving portions of the tumour. The dense fibrosis and abundance of macrophages containing iron pigment point to a hæmorrhage into the gland at a considerable period before necropsy, causing partial destruction of the adenoma and almost complete destruction of the pituitary gland proper. The hæmorrhage extended, moreover, into the leptomeninges on the left, causing damage to the optic tract on that side. Chromophobe adenomata are liable to be complicated by hæmorrhage, and the distribution of the grades of severity of the pathological changes suggests that the hæmorrhage actually arose within the sella turcica. There was no evidence of a leaking aneurysm of any cerebral artery.

The other ductless glands examined show atrophic changes, which resemble those usually reported in cases of pituitary cachexia (Simmonds's syndrome), and which are no doubt secondary to the destruction of the anterior lobe of the pituitary body. The slight degree of osteoporosis found may be attributed to the patient's prolonged confinement in bed.

COMMENT

The diagnosis of Simmonds's syndrome was entertained during the patient's life; post-mortem examination established it and explained the main clinical features of the illness.

The rapid gain in weight (1½ st. in a few months) preceding the illness may have been associated with the development of the chromophobe adenoma of the anterior lobe of the pituitary body. This is uncertain, however, for the somatic abnormalities accompanying the presence of chromophobe adenomata are inconstant; such a tumour measuring 1·2 by 1·2 by 1·0 cm. has recently been found (P.M. 262, London Hospital, 1933) accidentally at necropsy in a normally developed subject.

The acute onset of the illness was clearly brought about by a sudden hæmorrhage in or near the tumour. Any hæmorrhage at the base of the brain can produce collapse, coma or semi-coma, vomiting, and headache. It can also produce fever, usually of moderate degree; the only manifestation of this hæmorrhage that may have been due to its particular situation is the height of the fever (105°). The hæmorrhage abolished almost all the remaining function in the left optic nerve, itself already damaged as the result of an old choroido-retinitis.

The hæmorrhage and the resulting inflammatory reaction and fibrosis destroyed the main mass of the chromophobe adenoma, and practically the whole of the pituitary body. For the remaining ten months of his life the patient suffered from the effects of pituitary deficiency, which in his case were moderate wasting, great general weakness, a low blood pressure, a low level of blood-sugar, and attacks of vomiting and prostration. These attacks, and the hypotension, were reminiscent of Addison's disease, and post mortem the secondary atrophy of the suprarenal was found to be pronounced; there was, however, no Addisonian pigmentation. His basal metabolic rate, at least at the time when it was determined, does not seem to have been lowered, although at death the thyroid was markedly atrophic.

The hypoglycæmia is interesting and well established. Blood-sugar changes have rarely been

mentioned in descriptions or case reports of Simmonds's syndrome. Yet the finding of hypoglycæmia in pituitary deficiency is exactly complementary to the familiar hyperglycæmia often associated with chromophil adenoma (acromegaly), a variety of anterior pituitary excess. Further, it is a close parallel to the experimental observation of Houssay and Biasotti that the raised blood-sugar of depancreatised dogs falls towards normal when their pituitary bodies are removed, and also to that of Corkill, Marks, and White that hypophysectomised rabbits often have a low blood-sugar and an increased sugar tolerance, and are abnormally sensitive to insulin. But suprarenal deficiency is also characterised by a lowered blood-sugar level, and there is pathological evidence of suprarenal deficiency in this case. Whether the hypoglycæmia is a direct result of the pituitary defect, or an indirect effect depending on the secondary suprarenal atrophy, must therefore remain an open question.

SUMMARY

The clinical and pathological features of a case of Simmonds's syndrome (pituitary cachexia) are described. The syndrome appeared after the destruction, by hæmorrhage, of the pituitary body and an included chromophobe adenoma of the anterior lobe.

We wish to thank Prof. H. M. Turnbull for his help in the preparation of the pathological report.

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A CASE OF SIMMONDS'S DISEASE

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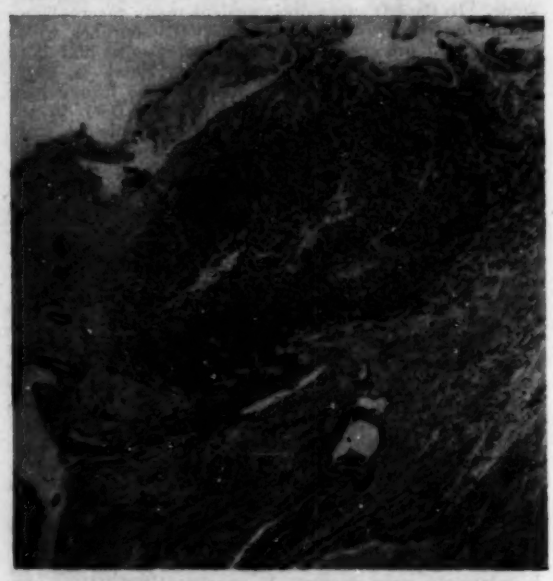
Since this condition was first described by Simmonds[1] of Hamburg in 1914 some 40 cases have been reported on the Continent and in America, but we have only been able to find one record from this country (Good and Newman[2]). It therefore appeared that a short note on a case would be of interest.

CASE REPORT

History.—The patient was a woman aged 41, the eldest of four, the rest of whom were healthy. She had always been pale, lacking in initiative and indifferent about personal cleanliness. Her hair was curly. At school she was backward and as a child she was considered to have rickets. Menstruation began at 14 years and was quite normal. The secondary sexual characteristics were well marked, but she always had a husky, toneless voice. She was married at 28 and during the next eight years had six pregnancies: (1) mentally deficient (alive); (2) normal (alive); (3) stillborn; (4) miscarriage; (5) normal (alive); (6) died in infancy. The last delivery was abnormal, the patient having placenta prævia, which was followed by a febrile puerperium. She was in hospital six weeks.

The last child was born five years ago and after that the patient never menstruated; apart from this there was no sudden change except that the relatives noticed that she had lost weight. None of the children were ever breast-fed. She had had no illnesses except complete dental extraction between fifth and sixth pregnancies for pyorrhœa.

The patient was first seen in February, 1933, when she was sent to hospital as post-influenzal debility. She was pale and complained of weakness. There were no definite signs or symptoms on which to form a diagnosis. Certain points suggested mild hypothyroidism, and she was therefore given thyroid (dried extract) gr. ½ twice daily, iron and a full diet, and sent to a convalescent home



Fibrosis of pituitary, showing surviving area of anterior lobe and tubules in pars intermedia.

where the same treatment was carried out; only a slight improvement was noticed. She was next seen in August, 1933, when she was sent into hospital for investigation on account of vomiting, anorexia and general debility.

Condition on admission.—She was a small, pale woman of medium nutrition, and looked at least ten years older than her age. The hair on the scalp was normal in texture and not noticeably thin, but there was marked diminution of the axillary and pubic hair and eyebrows. The skin was of a lemon colour, but of soft texture. The face was wrinkled and she was edentulous. The breasts were very small. Otherwise no abnormal signs could be found. The pulse was soft.

Course of the case.—Her condition remained very much the same until a week before her death. The vomiting occurred in attacks and bore no relation to food; it was more often in the morning. She had periods of freedom. She often complained of headache and pains in the back. She felt the cold. There was a transient attack of œdema, more marked in the eyelids and lumbar region and not accompanied by any increase in subjective symptoms. She was able to get up for several hours each day, during which time she was a willing helper in light ward duties. On Nov. 5th, 1933, she said she felt unable to get up and lay huddled in the bed-clothes. On the 6th at 6 A.M. she had a convulsive attack from which she recovered after administration of adrenaline and a glucose drink. On the 7th she had a more prolonged attack which proved fatal.

CLINICAL AND PATHOLOGICAL INVESTIGATIONS

The temperature was always subnormal. Respiration and pulse-rate normal.

Blood.—The blood pressure was never above 90 and

during the last ten days was between 80 and 85. The blood count showed no anæmia, but a leucopenia and relative lymphocytosis and some eosinophilia.

	Aug. 23rd, 1933.	Oct. 9th.
Red cells ..	6,280,000	5,320,000
Hæmoglobin ..	96%	86%
Colour-index ..	0·8	0·8
White cells ..	3,000	5,600
Polymorphs ..	42·5	30
Eosinophils ..	1·5	6
Lymphocytes ..	56·0	64

The blood-urea was normal (44 mg. per 100 c.cm.). The blood-sugar was not estimated.

Gastro-intestinal.—There was achlorhydria. A barium meal showed no abnormality.

Urine.—Specific gravity 1020–1024. Volume normal. Occasionally a trace of albumin, but no other abnormal constituents were found. The urea concentration was normal. Microscopically there were a few red blood corpuscles and *Bacillus coli*.

PATHOLOGICAL REPORT

Summary of necropsy (No. 1738/1933). Simmonds's disease. Fibrosis of pituitary.—Atrophy of heart. Moderate atheroma of arteries. Area (larger 2 × 1·2 cm.) of subpleural fibrosis at apex of each lung. Parathyroids small and inconspicuous. Thymus masked by fat. Brown atrophy of liver. Engorgement of small spleen containing an excess of eosinophil leucocytes. Atrophy of cortex of small kidneys (cortex 0·3 cm., medulla 0·8 cm. deep); moderate ischæmic fibrosis; slight chronic pyelitis. Œdema of small pancreas. Severe chronic appendicitis. Fibrosis of small ovaries (2·5 × 0·7 cm.). Hair of head abundant, fine and soft; axillary and pubic hair absent. No abnormality in distribution of fat. An edentulous, moderately nourished woman.

The pituitary was adherent to the surrounding tissues; it measured 0·8 × 0·6 × 0·5 cm. and on sagittal section showed a tough white cut surface with a greyish-yellow central area (0·25 × 0·1 cm.). The thyroid was small; its cut surface showed a few indistinct white strands in a pale yellow ground. The suprarenal bodies were small, the left measuring 2·6 × 2·0 × 0·6 cm., the right 3·8 × 1·9 × 0·7 cm.; in both an abundant grey medulla was surrounded by a very thin (up to 0·1 cm. thick) yellow cortex.

Microscopical examination.—Sections were taken of the pituitary, thyroid, both suprarenals, ovary, liver, spleen, kidney, appendix, and apex of lung; they were fixed in 4 per cent. saline formaldehyde, embedded in paraffin, and stained with Ehrlich's hæmatoxylin and eosin and with iron hæmatoxylin and van Gieson's mixture. The liver and one suprarenal were also stained with hæmatoxylin and Sudan III., and we are indebted to Dr. A. C. Crooke for a preparation of the pituitary stained by Mallory's acid-fuchsin aniline-blue method.

On microscopical examination there is a dense fibrosis of the whole contents of the pituitary fossa; throughout the fibrosis there is a slight infiltration with lymphocytes and large mononuclears. The anterior lobe is almost entirely represented by a small area of gland tissue (see Figure), corresponding in position to the greyish-yellow area seen with the naked eye; the great majority of the cells are chromophobe; there are a few basophil and a very few acidophil cells. There are also a few small groups of chromophobe cells, mainly situated in the pars intermedia, where there are also a few small cysts and tubules lined with cubical and flattened cells. Of the posterior lobe only a very small ill-defined area close to the pars intermedia can be recognised.

The thyroid shows a dense diffuse fibrosis and an extensive infiltration with lymphocytes; in addition to the many lymphocytes scattered diffusely through the gland, there are numerous close-packed masses in some of which "germ-centres" are present. The acini are greatly reduced in number and very small; only a very few contain colloid.

The cortex of the suprarenals is atrophied. It is very narrow and is unusually clearly demarcated from the medulla. The zona glomerulosa is distinct, except in a few small areas in which the zona fasciculata appears to extend to the capsule; the cells of the zona glomerulosa contain an unusually large number of lipoid droplets. The cells of the zonæ fasciculata and reticularis are loaded with lipoid; their outlines are for the most part distinct, but in places the cells have broken down to form small foamy areas; in these areas nuclei are fewer than elsewhere; pigment cells are absent. There is considerable degeneration of cell-bodies in the medulla. In the capsule of one suprarenal are two small cortical adenomata, whose cells show changes similar to those in the cortex proper.

COMMENT

Silver [3] has reviewed the literature exhaustively, and from his study of 41 cases has drawn a well-defined picture of the clinical and pathological features of Simmonds's disease. This case presents almost all of them. There was an insidious onset, towards the end of a long series of pregnancies, of progressive weakness and debility, accompanied by amenorrhœa and loss of pubic and axillary hair; headache, vomiting, anorexia and a subnormal temperature were present. At one time the symptoms suggested a mild degree of hypothyroidism. At necropsy destruction by fibrosis of the anterior lobe of the pituitary was found; there was atrophy of the other endocrine glands and of the other organs.

The most unusual feature of this case was the absence of obvious wasting; but the relatives stated that the patient had been losing weight, she appeared older than her years, and the characteristic splanchnomicria was noted. Moreover, cachexia has not invariably been present in the reported cases; Fahr [4] found it absent in his case, and in two of Reye's [5] cases, in which the duration of the disease had been eight and three years respectively, no obvious wasting had occurred. In the microscopical examination there were unusual findings in two organs: the posterior lobe of the pituitary and the thyroid. When the destruction of the anterior lobe of the pituitary is due to fibrosis the posterior almost always escapes; in this case however it is almost completely destroyed. A similar condition was noted by Simmonds in his original case and by Thür.[6] In the thyroid simple atrophy is the usual finding; fibrosis and lymphadenoid infiltration, found in this case, have been described by Thür,[6] Meng,[7] and Pribrian,[8] and are present in Aitken and Russell's [9] case.

Our thanks are due to Dr. W. R. M. Turtle for permission to use the clinical notes.

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NATIONAL INSTITUTE FOR THE DEAF.—The development of this institute since its reconstitution ten years ago has been so rapid that the committee have had to provide more commodious premises. A fine freehold house, 105, Gower-street, London, W.C. 1, has been secured, and the work will shortly be transferred thereto from the present offices, 2, Bloomsbury-street, W.C. 1. The cost, with alterations and furnishing, will be about £12,000, and for this sum Lord Charnwood and his associates are now appealing to the public. Some £2500 has so far been received. It is pointed out that a permanent centre of information and advice on deafness and the deaf is a national necessity, and that adequate accommodation is an essential for satisfactory service.

ERYTHRÆMIA
WITH MIGRAINE, GOUT, AND INTRA-CARDIAC THROMBOSIS

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THE term "polycythæmia rubra vera" is frequently used as if it were synonymous with erythræmia (splenomegalic, cryptogenic, or *apparently primary*, polycythæmia, of the Vaquez-Osler type), but strictly speaking it must include all cases of polycythæmia rubra in which the erythrocyte count per cubic millimetre of blood is increased, provided that the total blood volume is not decreased (as it would be if the blood were inspissated, for instance, owing to diarrhœa). Clearly, therefore, the term "polycythæmia rubra vera" logically must include the secondary polycythæmia (or erythrocytosis) often present in cases of congenital cardiac malformation—which cannot rightly be called erythræmia. Accordingly, in the heading of the present paper, I have kept to the term "erythræmia" instead of speaking of "polycythæmia vera," though the latter term is very frequently employed as a synonym both in English and foreign literature.

HISTORY OF THE CASE UP TO DECEMBER, 1932

I demonstrated the patient at the clinical section of the Royal Society of Medicine [1] on Dec. 9th, 1932, and following is a summary of my notes up to that date:—

The patient, aged 43 years, is a somewhat thin man of typical erythræmic appearance, with considerable enlargement of the spleen. Liver not felt. No enlargement of superficial lymph glands. Since 1922 he has had frequent short attacks, apparently of the nature of ophthalmic migraine, which he says are often associated with transient diplopia; sometimes there have been luminous phenomena; at times he has had giddiness. Since 1929 he has suffered from repeated gouty arthritis in various joints and has had a few small tophaceous nodules, from one of which sodium urate crystals were obtained in July, 1932. No evidence of erythræmia in other members of the family.

In July, 1932, he returned to England from New Zealand with careful notes of his case by Dr. J. Roberts Boyd and Dr. W. J. Hope-Robertson, of Wellington, who had diagnosed the condition. On reaching England the spleen could be felt three fingers-breadth below the costal margin; liver not obviously enlarged. Superficial lymph glands not enlarged. Blood count: hæmoglobin, 132 per cent.; erythrocytes, 9,500,000; colour-index, 0·6; leucocytes, 14,900 (metamyelocytes, 1 per cent.; polymorphonuclear neutrophils, 78 per cent.; lymphocytes, 16 per cent.; monocytes, 5 per cent.); no nucleated or other abnormal red cells seen. The urine showed nothing abnormal excepting a slight excess of urobilinogen and a little indican. Brachial blood pressure: 110/80 mm. Hg. Blood-urea, 48·6 mg. per 100 c.cm.; blood-serum calcium, 10·1 mg.; blood-serum cholesterol, 161 mg. Negative Wassermann and Meinicke reactions. Fractional examination gave normal hydrochloric acid values in the gastric contents.

Since then the erythræmic condition has not varied much, and has not been beneficially affected by phenylhydrazine treatment. Patient recently had a prolonged syncopal attack lasting two and a half days, such as would suggest an attack of coronary thrombosis, though typical pain was absent.

SUBSEQUENT HISTORY

The patient remained in the hospital till August, 1933. During this time he often suffered from severe pain (sometimes "catching" with inspiration) in the region of the spleen. The spleen became greatly enlarged and formed a rounded, clearly defined, bulging mass, reaching considerably to the right of the middle line and downwards to below the umbilicus. Thrombotic infarction was thought of with perisplenitic adhesions. Local belladonna plasters seemed somewhat to relieve the pain. The liver was not definitely felt. Cardiac palpitation occurred sometimes. The urine contained a little albumin and a few hyaline and granular tube casts. Uric acid in the blood: 5 mg. per 100 c.cm. The treatment was by occasional small bleedings. Constipation was troublesome and there was considerable loss of body-weight. (Weight on June 18th, 1933, was 54·7 kg. against 66·7 kg. on July 25th.) There was a tendency at times to vomit—whether connected or not with migraine. A trial of intramuscular injections of a splenic extract and a trial of a high fat diet (see Rothmann [2]) gave no decided result; the patient disliked the excess of fat. Colchicum had a good effect on the gout. In August, 1933, shortly before leaving the hospital, his blood count gave: hæmoglobin, 110 per cent.; erythrocytes, 5,900,000; leucocytes, 25,150. The relatively high leucocyte count (often taken) was very striking.

On Feb. 4th, 1934, the patient was seen in the out-patient department, apparently much better, and having remained almost free from gout. He complained of weakness in the legs. Occasionally he had noticed quite transient diplopia. Body-weight: 68·6 kg. Spleen and liver not felt. Brachial blood pressure (higher) 130/95 mm. Hg. Heart: nothing special. Urine: specific gravity 1017; acid; albumin present (a "cloud"); no sugar; a few hyaline tube casts. Blood count: hæmoglobin, 105 per cent.; erythrocytes, 6,640,000; leucocytes, 27,650 (eosinophils, 5 per cent.; polymorphonuclear neutrophils, 76 per cent.; lymphocytes, 15 per cent.; monocytes, 4 per cent.). Moderately erythræmic appearance.

On April 11th the patient again came up to show himself, weighing more (73·1 kg.) and saying that he had been taking more fat in his diet. Spleen not felt, but apparently somewhat enlarged by percussion note. Heart: nothing special. Urine: more albumin (5 per mille by Esbach's tube), but microscopically nothing abnormal. Brachial blood pressure: 135-85 mm. Hg. Blood count: hæmoglobin, 117 per cent.; erythrocytes, 8,200,000; leucocytes, 32,800. Uric acid in blood: 5·84 mg. per 100 c.cm. He said he had felt weak in the legs and had lately had some epistaxis and a slight tendency to oozing of blood from the gums. He had recently had an "attack" of about ten minutes' duration, with roaring sound in his left ear, slight vertigo and slight diplopia. Blood letting: 200 c.cm.

The patient was *readmitted* on May 10th, 1934, in a very feeble condition, having had tar-like fæces for the last week. He had for a longer time had burning sensations and a tendency to belching about two hours after meals. A blood count on the preceding day had given: hæmoglobin, 73 per cent.; erythrocytes, 5,600,000; leucocytes, 32,700 (eosinophils, 8 per cent.; myelocytes, 2 per cent.; polymorphonuclear neutrophils, 74 per cent.; lymphocytes, 13 per cent.; monocytes, 3 per cent.); thrombocytes, 700,000 per c.cm. of blood, including many "giant" forms; no poikilocytosis, anisocytosis, or polychromasia. Duodenal ulcer was considered probable, and he was treated accordingly, but the fæces continued to contain blood, and on May 14th the blood count gave: hæmoglobin, 32 per cent.; erythrocytes, 2,840,000; colour-index, 0·56. Urine (May 11th): free from albumin and sugar and tube casts. On May 15th the patient was unconscious, and in spite of a blood transfusion (350 c.cm.) he died in the evening of that day.

NECROPSY AND MICROSCOPIC EXAMINATION

There was no ulceration of the duodenum, stomach, or œsophagus, but the source of the hæmorrhage must have been a greatly congested segment of the ileum, about 20 in. in length, not far from the ileo-cæcal valve, the congestion being apparently due to thrombotic or embolic infarction; there was no actual gangrene. The heart (400 g.) contained some ante-mortem white adherent thrombus in the left ventricle at the apex and under the mitral valve. Microscopical examination showed a little small-cell infiltration and degeneration of the subendocardial apical myocardium, over which there was thrombus in process of organisation. Otherwise the heart and aorta showed

nothing special. The spleen (650 g.) was enlarged, puckered, and scarred (from old thrombotic infarction) and was fixed to surrounding parts, especially the stomach, by perisplenitic adhesions. There was old thrombotic occlusion of the trunk of the splenic artery. The splenic substance was of a brownish-red colour, and microscopically showed fibrosis, a good deal of brown pigment (hæmosiderin) and relatively scanty lymph follicles. The liver (2375 g.) was large, and showed moderate centro-acinous changes, apparently due to passive congestion. The skull was not opened; the other viscera showed nothing special by naked eye examination.

The bone-marrow, examined in the central portion of the shaft of the left femur, was partly fatty, but mainly red. Microscopically this red bone-marrow was found to contain only scattered fat vesicles, but to consist chiefly of neutrophil and eosinophil myelocytes (more of the former in most parts of the field) and nucleated red cells (mainly normoblasts) together with an *abundant* sprinkling of large megakaryocytes.

REMARKS

In regard to the source of the intestinal hæmorrhage in this case it was natural during life to think of duodenal ulceration as this is a recognised complication of erythræmia. I might refer, for instance, to a recent paper by W. Boyd,[3] who relates the case of a man, aged 37 years, with polycythæmia, coronary thrombosis, and duodenal ulceration. It seems that in such cases the polycythæmia really bears a causal relationship to the duodenal ulceration. But intestinal hæmorrhage may also be due to infarction of a segment of small intestine as in the present case.

Whether in the present case the terminal intestinal lesion was due to embolism from the thrombus in the left ventricle or to spontaneous mesenteric thrombosis I am not sure, but there can be little doubt that the splenic infarction was thrombotic. The time of the splenic infarction corresponded probably to that of the great bulging swelling of the spleen and the troublesome pain in the splenic region, which were striking features in the clinical history of the case.

Gout is a well-known occasional complication of erythræmia. I have myself observed this association several times, and I think that it is quite possible that the earliest record of erythræmia will be discovered amongst old descriptions of gouty cases. There can be no doubt that (like the tendency to urinary lithiasis in some leukæmic and erythræmic cases) the association of gout with erythræmia is due to excessive nuclein catabolism resulting from the destruction or breaking-up of the nuclei of the abundant erythroblastic and granulocytic elements. In the later stage of the present case, as in most "full-blown" erythræmic cases, the leucocyte count became relatively more increased than the erythrocyte count.

The abundance of the megakaryocytes in the bone-marrow may, of course, be correlated with the high thrombocyte count in the blood a few days before death.

The association of migraine with erythræmia was especially studied by Koester (1906) in his case,[4] and there may well be a causal relationship between the two (in my case the gout may have been a causal link), though this association seems to be hardly frequent enough to support such a suggestion.

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TRIGONAL LOOP-TRACTION IN SUPRAPUBIC PROSTATECTOMY

A NEW TECHNIQUE

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THE results of suprapubic prostatectomy have been considerably improved in recent years by modifications in technique. Thomson-Walker's open operation led to better control of hæmorrhage, and Harris's plastic method has helped to diminish sepsis. Considerable difficulty has, however, been encountered in so placing Harris's posterior suture that it ensures a firm hold pending union between the edges of trigone and urethra. I have evolved a new technique which successfully overcomes this difficulty and can be carried out in every case. A flap of trigonal tissue is drawn down into the prostatic cavity and retained in position by means of a silk traction-loop traversing the urethra. Healing quickly takes place by granulation, and the objective of the Harris operation is achieved without the uncertainty occasioned by a suture which may fail to hold.

TECHNIQUE OF THE OPERATION

A gum-elastic coudé catheter having two eyes is threaded with two moderately stout silk threads about 18 in. long, so arranged that 3 in. of each project from the eye. The catheter is well lubricated, passed into the bladder, and the distending fluid injected. A wooden spigot closes the catheter and a sterile towel is arranged upon which the outer ends of the silk threads rest alongside the catheter. A small artery forceps is attached to one thread and a larger pair to the other, so that they may be distinguished subsequently; or silk threads of different colour may be used.

A midline incision is preferred, though a transverse one may equally well be adopted, and the peritoneum gently displaced upwards, exposing the bladder which is opened at its highest point. A small puncture is made in the bladder wall and a suction-tube used to evacuate the contents. Great care is taken to avoid opening up the cellular tissue in front of the bladder. Two sling stitches are inserted and the opening enlarged upwards until two fingers can be accommodated.

The bladder ends of the two silk threads are unthreaded from the eye of the catheter, a small and large forceps placed on them, and the catheter withdrawn. Two separate silk threads thus traverse the urethra from meatus to bladder. The prostate is enucleated bimanually as expeditiously as possible, and time is not expended in attempting to detach every nodule of gland tissue at this stage, for with the excellent exposure of the prostatic cavity subsequently afforded all can then be removed in full view. Dry gauze from a 3 in. roll is lightly packed into the cavity to check hæmorrhage, whilst the gloves are changed and the patient is slightly tilted towards the Trendelenburg position. A self-retaining retractor, of Morson's pattern, is inserted and the gauze withdrawn. With a good top light or shadowless lamp no additional illumination may be required, but in case of need the bladder may be brilliantly lit by means of the lamps attached to the three retractor blades. The suction apparatus is now turned on and serves to keep the field clear. The centre bar of the middle blade of the retractor is made tubular to act as a sucker, and projects forward sufficiently to keep the rim of the cavity dry without in any way impairing the view. A little hot lotion is injected into the cavity and, as soon as this has been aspirated off, any pieces of prostatic tissue are removed. The vessels at the rim are secured by stitches inserted on either side,

and the ends of the first two serve as tractors to facilitate the introduction of others. Constant suction, with the occasional use of a mounted swab, provides a perfectly clear field, and little difficulty is found in inserting the necessary stitches.

The next step is the most important, for success or failure turns upon it. A fine silk suture, 18 in. long, is passed through the trigone in the middle line, about ½ in. behind the raw edge, thus securing a firm hold upon it. The ends of this suture are tied to the bladder end of one of the silk threads previously mentioned, and drawn through the urethra to the external meatus. When pulled tight a triangular flap of the trigone is seen to be drawn down, largely obliterating the posterior portion of the prostatic cavity and diminishing the bleeding. The weight of the forceps attached to the silk thread will be found sufficient to keep the flap in position at this stage, and the indwelling catheter is next inserted. A flute-ended indiarubber catheter, size 24, with two lateral openings, is used for this purpose. After lubrication it is readily drawn into the bladder by means of the second silk thread, which is secured to its tip by transfixion. The silk thread is removed and a stout silkworm-gut stitch attached instead to the tip of the catheter, the ends being held in a forceps. This is used later for suspending the catheter in its final position within the prostatic cavity.

At this stage bleeding is considerably diminished and the remainder of the plastic portion of the operation consists in inserting the one or more anterior obliterating stitches described by Harris. These may be made more effective by using the infolding method described below, as they then tend to diminish pocketing in the anterior part of the cavity during healing. A wide hold is taken with the boomerang needle-holder and the catgut stitch drawn through. The two free ends are made to cross to opposite sides of the prostatic cavity, where each, threaded on a needle, picks up a portion of the rim, emerging once more into the bladder. On tying the two ends infolding takes place and the edges are well inverted.

The catheter is now carefully adjusted so that its lower lateral eye lies just at the entrance to the torn posterior urethra, thus draining the prostatic cavity completely, and a small drainage-tube (¼ in.) is placed in the bladder. Closure of the wound in the bladder is carried out in the usual way, with an inverting stitch, followed by a second layer of fine catgut. The drainage-tube should lie at the upper end of the bladder incision and be firmly gripped, the silkworm-gut loop suspending the catheter emerging immediately below it. A tiny drainage-tube is placed in front of the bladder and, if all has gone well, the pre-vesical space is free from oozing and the bladder sinks to its normal position. One or two interrupted catgut stitches and one continuous stitch bring the muscles and sheath together. Particular care is taken to place one or more stitches through the muscle above the tube to strengthen this potential site of a hernia. The skin wound is closed with interrupted sutures. The suspending stitch for the catheter is passed through the skin margin on one side and tied. The silk loop attached to the trigone is finally tightened, wrapped once or twice round the catheter, and tied securely. The catheter is syringed through until fluid is seen to run freely from the suprapubic tube, and then wrapped in a sterile dressing, so that continuous drainage is maintained.

On recovery from the anæsthetic the patient is comfortably propped up in bed. The catheter is connected to a length of rubber tubing draining into a receiver at the side of the bed. About 2 oz. of silver nitrate solution, 1 in 2000, are slowly injected at the end of two hours, and then every four hours during the first 24 hours. Thereafter morning and evening injections only are required.

A certain amount of urine drains into the dressings for the first day or two. Vomiting, straining, and coughing all increase this during the stage of recovery from the anæsthetic, and the small suprapubic tube acts as a most valuable safety-valve. Both tubes are usually removed on the fourth or fifth morning, the state of the urine being the deciding factor. The catheter then copes with the greater part of the drainage, and morning and evening dressings are sufficient to keep the patient dry and comfortable. The Hamilton-Irving box is not required, and the absence of pressure on the wound saves the patient much discomfort, while far greater freedom of movement is permissible in the early days of recovery. The catheter is left for 10 to 12 days and then removed, together with the trigonal traction stitch. The patient usually passes a little urine naturally after a few hours, and some may leak through the suprapubic fistula for another day or two. In the course of 48 hours micturition becomes freer, and the wound is usually dry about 14 days after operation.

TWO-STAGE OPERATION

One of the most gratifying features of this technique has been the success attending second-stage operations. At first sight it would seem that the contracted bladder and dense scar tissue surrounding the suprapubic fistula must render it impracticable. This is not so, and although a much wider experience is necessary before final judgment can be passed it may be said that the method has not yet had to be abandoned in any case. An examination of several cases has been carried out with the McCarthy endoscope between the tenth and fourteenth post-operative days to determine the exact condition at the bladder neck following this procedure. Using water distension, the instrument (24 Ch.) was readily passed into the bladder and, on withdrawal, the junction of bladder and posterior urethra identified with difficulty. No raw area remained, the transition from bladder to urethra was smooth and uninterrupted, and sphincter-like contractions closing the lumen could be observed on interrupting the flow of irrigating fluid. These findings were encouraging, for post-operative stricture formation and loss of control have been suggested as likely sequelæ when reconstructive operations are carried out in this region. No evidence of these has been forthcoming, and the method is put forward with confidence for an extended trial.

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Clinical and Laboratory Notes

RUPTURE OF THE CÆCUM DUE TO ANNULAR CARCINOMA OF THE SIGMOID

By W. N. P. Wakeley, M.B. Lond.
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I have found no record, since 1920, of rupture of the cæcum above a malignant stricture. Certainly one or two cases of perforation have been reported, but the perforation occurred in conjunction with appendicitis, and was merely due to gangrenous typhlitis. I have been told by Mr. A. W. Kendall of one case of sigmoid carcinoma with perforation of the bowel on the right side of the abdomen, but the actual site was not confirmed at autopsy.

According to F. T. Van Beuren [1] rupture of the intestine secondary to prolonged over-distension is seen only in cases of mechanical ileus. The theory is that perforation is due to necrosis of hæmorrhagic infarcts on the antimesenteric surface: the gut becomes distended above the obstruction, and the

[1] Ann. of Surg., 1926, lxxxiii., 69.

vessels in its wall are stretched; this causes obliteration of the veins, while the arteries continue to pulsate; extravasation and coagulation of blood occurs in the submucosa, and finally the pressure occludes the artery as well as the vein; and the area of tissue supplied by these vessels is thus deprived of circulating blood, with consequent necrosis. The necrosis is evident first in the submucosa and inner muscular coats and later spreads to the other coats.

A man 66 years of age was admitted to hospital complaining of "terrible pains inside, and constipation." Constipation had been noticed for some months and during the week before admission to hospital the bowels had been open only once. Diarrhœa had never been experienced. Colicky pains in the abdomen had been felt on and off for some weeks, but on the day before admission they had suddenly become agonising. The patient had vomited six times during the last week, and had been much troubled by borborygmi. He had never had appendicitis or jaundice. The appetite had been fairly good, but he may have lost weight.

The patient had a rather drawn face, and the tongue was furred but moist. The pulse-rate was 126 per minute, the temperature 100·4° F., and the respiration-rate 24. There was enormous distension of the abdomen; it appeared to be symmetrical and mainly central, and there was a hyper-resonant percussion note. The abdomen was tense all over, but much tenderness and some rigidity was obvious in the right side of the abdomen especially below the umbilicus. No visible peristalsis was seen, and nothing abnormal was detected on digital examination. No external herniæ were present.

After the clinical examination, which elicited obvious signs of a localised right-sided peritonitis together with intestinal obstruction, a tentative diagnosis of appendicitis complicated by paralytic ileus was made.

At operation the abdomen was very distended even under the anæsthetic. A right paramedian incision about 6 in. long was used. On opening the peritoneum a large amount of gas was liberated, and the abdomen visibly decreased in size while the gas escaped. As the abdomen collapsed a quantity of brown fluid was seen in the peritoneal cavity. The gut showed no signs of peritonitis except a loop of ileum adjacent to the cæcum which was bright red in colour and showed early acute inflammation. The appendix was normal as were the stomach and duodenum also. The cæcum was of the third or normal type of man (Treves). On its outer aspect it was covered with plastic lymph and was acutely inflamed. There was a small perforation about the size of a pin's head in this inflamed area, and fæces were seen escaping from it. The large bowel was then examined and an annular carcinoma of the sigmoid was found. A cæcostomy through a soft rubber catheter incorporating the hole already in the cæcum was made. The flank and pelvis were drained.

The condition after operation was fair, and recovery gradual yet uneventful. The cæcostomy commenced to work soon after operation. On the eighteenth day after the first operation a second operation was performed. The growth and adjacent gut was resected while continuity of the bowel was established by end-to-end anastomosis. Unfortunately the patient died on the following day from shock. The growth was found to be a typical annular carcinoma causing almost complete obliteration of the lumen of the bowel.

In the cases studied by Van Beuren the perforations were usually close to the seat of the obstruction and were on the antimesenteric border. The cæcum usually, and certainly in this case, had no mesentery. Also the perforation was at a distance from the obstruction. However, the perforation occurred on the outer aspect of the cæcum where the anterior and posterior cæcal arteries anastomose; this situation being equivalent to an antimesenteric border as far as blood-supply is concerned. Also the cæcum is the thinnest and most dilated portion of the large bowel. Thus the mechanism of gut distension—stretching of vessels, their subsequent obliteration by pressure, and ultimate necrosis of the bowel wall—probably holds good in this case. Certainly the appearance of the perforation suggests that it does.

Annular carcinoma of the colon is by no means rare, yet perforation after obstruction is fortunately uncommon; perhaps surprisingly so in view of the fact that the functions of the bowel in these cases are frequently unimpaired and symptoms are not obvious until the lumen is almost obliterated. In the case here recorded a good deal of the distension was due to the development of gases from the fæcal material pent up in the large bowel. This was shown by the large amount of gas liberated on opening the peritoneal cavity.

My thanks are due to Mr. Yates Bell for permission to publish this case.

DARK BLUE VOMIT DURING IODIDE THERAPY

By G. C. Linder, M.D., M.R.C.P. Lond.

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A COLOURED man was admitted to the New Somerset Hospital, Capetown, with a severe attack of vomiting. The vomit was turbid and of a dark blue colour with a slight pinkish tinge. The circumstances suggested that he might have been poisoned. The following investigation revealed the nature of the pigment.

By filtering it was found that the pigment was not in solution; the filtrate was perfectly clear and colourless. On standing exposed to light the colour faded, but it was restored by a trace of bleaching-powder or of nitric acid; excess of bleaching-powder decolorised it. On shaking with chloroform the chloroform became pink, but the pigment remained in the watery phase; addition of a drop of thiosulphate decolorised both chloroform and vomit. Microscopical examination showed numerous granules which became deeply pigmented on addition of iodine or by the addition of bleaching-powder without iodine.

The conclusion was that the colour was due to a trace of iodine reacting with the starch of the last meal. Further inquiry elicited the fact that the man was under treatment for syphilis and was taking iodides. The oxidising agent which led to the presence of a trace of free iodine in the stomach was not identified.

PAYING PATIENTS AT GUY'S HOSPITAL.—Fifty years ago Guy's Hospital opened the first ward for private paying patients to be instituted in a general hospital. At first it contained 12 cubicles; to-day 30 cubicles and one private room are available for private patients. On Oct. 3rd the foundation-stone of a new paying patients' block to accommodate 73 patients was laid by Lord Nuffield who, in December last year, offered the governors of the hospital £45,000 for this purpose. The new block, which will be called Nuffield House, will contain 53 separate rooms, and five four-bedded rooms, with a cubicle for each patient. It will have its own sister in charge, resident surgeon, and fully equipped operating theatre suite. There will be waiting and lounge rooms for visitors and patients, and a complete kitchen and food unit. The whole of the roof, which is laid out as a garden, and is approached by electric bed lifts, is to be available for patients, and the central portion is to be enclosed with movable glass slides.

After the ceremony Lord Nuffield presented the prizes to the students of the medical school and Mr. C. H. Fagge delivered the address from which extracts are given on p. 824.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF THERAPEUTICS AND PHARMACOLOGY

AT a meeting of this section held on Oct. 8th, Prof. J. H. BURN delivered his presidential address on the

Control of the Blood Pressure

Prof. Burn said that the maintenance of the blood pressure was still thought to be in the main an active process, depending on the constrictor effect of the sympathetic nerves and of the circulating hormones, adrenaline and vasopressin.

SURGICAL MEASURES

Surgical treatment of high blood pressure was increasing and was based on the view that removal of portions of the sympathetic system or of the suprarenal glands must necessarily do good. Some success had in fact been achieved in two directions. Jonnesco and Brüning had found that attacks of angina pectoris disappeared in patients from whom the left sympathetic chain (from below the superior cervical ganglion down to and including the inferior cervical or stellate ganglion) had been removed. Various observers following C. H. Mayo had found that the crises of paroxysmal hypertension disappeared after removal of a chromaffin tumour from the neighbourhood of the suprarenal gland. It seemed quite clear that paroxysmal hypertension must be due to the sudden liberation of adrenaline in the blood. But apart from these two directions surgical treatment had not been successful. Attempts had been made to treat continuous hypertension both by removal of the suprarenal gland and by removal of portions of the sympathetic system, and both these methods seemed to have failed. The attempts had not stopped at removal of the second, third, and fourth lumbar sympathetic ganglia with adjacent branches on both sides, but had recently been extended by Adson and Brown to include bilateral section of the anterior roots of the spinal cord from the sixth thoracic to the second lumbar inclusive. Some lowering of the blood pressure seemed to have resulted from paralysis of the abdominal muscles.

THE THEORETICAL BASIS OF THESE MEASURES

It was time to reconsider the theoretical basis of such attempts. Prof. Burn described first the results of Alvarez's researches on the variation in normal blood pressure. Alvarez examined 6000 university students and graduates varying from 16 to 40 years of age and found the systolic blood pressure to range from 85 mm. to 190 mm. The variation in blood pressure was not more extensive in the men taken as a whole than it was in particular age-groups. Thus there were 1216 men of 18 years of age, and their blood pressure varied from 85 mm. to 180 mm. When frequency distributions of these blood pressures were plotted, it was evident that these were approximately normal and that blood pressure was a property showing continuous variation just like body-height. Hence it was wrong to regard blood pressures of 85 mm. or of 180 mm. as necessarily pathological; they might be quite normal. The standard deviation calculated from Alvarez's figures showed that 20 per cent. of men had a blood pressure greater than 140 mm., and from 2 to 3 per cent. had a blood pressure greater than 160 mm. The evidence indicated that the observation of a high figure on one occasion was not sufficient to justify a diagnosis of hypertension unless the doctor knew that at an earlier examination the blood pressure was much lower.

Taking the factors generally held to be responsible for keeping the blood pressure up, Prof. Burn pointed out that adrenaline was first shown to have a vasodilator as well as a vasoconstrictor action so long ago as 1900. The administration of adrenaline in many conditions when the blood pressure was high was attended by a fall of blood pressure. It seemed probable that this vasodilator component was present whenever adrenaline acted, and it should therefore be remembered that with removal of the suprarenal glands went a pressor agent as well as a depressor agent; it might be that suprarenalectomy was precisely the worst treatment for patients with continuous hypertension. In the same way it had lately been shown that vasopressin exerted a depressor effect when injected into the ventricle of the brain. Cushing had demonstrated that such an injection caused flushing, sweating, and a fall of body temperature, in contrast to the opposite effects attending intramuscular injection. Possibly the ventricular route was the normal course of the hormone into the body. Lastly it had recently been shown that in the dog the sympathetic supply to the muscles of the hind limbs contained a large vasodilator component. In the laboratory it was indeed much easier to observe the dilator than the constrictor effect. In this connexion it was interesting to recall R. W. Michell's observations at Cambridge that the blood pressure of rowing men was usually much less than the average. It was evident that all three mechanisms commonly regarded as purely constrictor also might exert a dilator action and that the truth of the matter might be that these agents, nervous and hormonal, did not merely raise the blood pressure but rather controlled it and were able actively to lower it. Hence to remove suprarenal glands or portions of the sympathetic system might be a treatment calculated to worsen rather than improve a patient's condition.

THE VASCULAR ACTION OF ETHER

In conclusion Prof. Burn discussed some evidence concerning the vascular action of ether when used as an anæsthetic. He pointed out that although ether was much less potent in this respect than chloroform, nevertheless it weakened the heart and lessened its output. Ether also caused vasoconstriction, and because of this the coronary flow was maintained. The vasoconstriction was caused by impulses passing down sympathetic nerves, for if the ganglia were first paralysed by nicotine to prevent the passage of such impulses ether caused a very large fall of blood pressure. Under ether anæsthesia the periphery must have a deficient blood-supply, for a weakened heart pumping blood through constricted arteries could not maintain a normal circulation. If the peripheral circulation remained poor for very long it was clear that the patient must suffer. A better understanding of the ill-effects of ether might encourage a greater use of some of the newer anæsthetics.

A CENTRAL POOR-LAW HOSPITAL FOR DURHAM.—The county council of Durham is proposing to spend £240,000 upon the erection of a central poor-law hospital at Dryburn with 300 beds.

REVIEWS AND NOTICES OF BOOKS

Radium and Cancer

A Monograph. By H. S. SOUTTAR, D.M., M.Ch. Oxon., F.R.C.S. Eng., Surgeon, London Hospital. London: William Heinemann (Medical Books) Limited. 1934. Pp. 387. 21*s.*

THIS book covers an immense amount of ground, ranging from the atomic theory, through radio-activity and the biological effects of radium, to the treatment of cancer in the various regions of the body. Mr. Souttar writes as if he thoroughly enjoyed dealing with the physical and mathematical side of his problem; in setting out to master what is known of the laws governing radio-activity he has travelled in regions with which few clinicians are at all familiar. The chapters on pure physics contain a summary of modern views of atomic structure, the emission and absorption of radiant energy, and the characters of X ray and radium radiations. The chapter on gamma rays is particularly important, and includes some excellent tables showing the absorption of hard and soft rays in various metals, the percentage of radiation transmitted, and the half-value layers for different thicknesses of platinum, all points of practical importance. The chapter on the biological effects of radium which follows is also a fair summary of recent experimental work, but the arrangement which separates this section from those on the principles of radiotherapy, and on the action of radium upon the tissues in man, is unfortunate since the reasoned continuity which makes the section on physics so readable and clear is thereby lost. The description of the technique of radium applications is very good and shows the high standard of technical skill possessed by the author and demanded of his assistants. For the measurement of dosage, Mr. Souttar prefers the "Natural Unit" first defined by Sievert, and adds to the letter G (used to indicate the unit) the filtration, thus increasing the precision of statement. A nominal relation has been ascertained between this unit and the International "r" unit, and it is an accepted and reliable method of expressing dosage. Many observers hold that the biological method, as practised by Failla and Quimby, which is here dismissed in a short paragraph as far too vague, is also sound and scientific.

The chapters on the treatment of cancer are very well written in the graphic style which characterises Mr. Souttar's book on surgery. Since this monograph is clearly meant for medical readers with a special interest in this subject, an elementary knowledge of the anatomy of the breast or œsophagus might have been taken for granted. The sections on carcinoma of the tongue and of the buccal cavity are particularly good, and the special methods involving the use of the Souttar radon seed introducer are carefully described. Carcinoma of the breast may also be treated in this special way, and the technique for the transthoracic implantation of seeds in tumours of the œsophagus, which the author tells us is an easier and safer procedure than might at first sight appear, is given in full detail. A cautious attitude is adopted regarding cancer of the rectum and prostate, with which all who have had experience of the use of radium in these sites will agree. Cancer of the uterine cervix has a special chapter, and several methods are described, including that used at the London Hospital.

There is one important omission from the chapters on cancer: those who read explicit directions on how cases are to be treated will seek in vain any statistical evidence of the results of this treatment. Only two tables are given, both concerning the radium treatment of cancer of the breast. One shows 29 out of 52 cases alive for an average period of two and a half years, the other, published in 1930, relates to cases the majority of which were treated only in 1928 and 1929. The average length of life in untreated cases is 38 months, so these figures have no practical value, and the day is past when personal impressions can be accepted as criteria guiding the choice of methods of cancer therapy. It is to be hoped that in a future edition the precise instructions on technique will be supported by figures showing the degree of success to be anticipated if they are carefully followed. This is a remarkable book which could only have been produced by a surgeon of unusual attainments, and deserves a wide public.

Diseases of Women

Fifth edition. By TEN TEACHERS. Under the direction of COMYNS BERKELEY, M.A., M.D., M.C. Cantab., F.R.C.P. Lond., F.R.C.S. Eng., M.M.S.A. (Hon.), F.C.O.G., Obstetric and Gynæcological Surgeon to the Middlesex Hospital. London: Edward Arnold and Co. 1934. Pp. 568. 18*s.*

THIS popular work remains largely unchanged. In the fifth edition an account of the functions of the ovary and other endocrine glands, and their relation to menstruation, has been inserted. The arrangement of the subject is orthodox and the multiple collaborative authorship undoubtedly results in the production of a work with a broad outlook. There will be but little disagreement with the views expressed. Only one point of major importance seems to us open to criticism. The objections to the operation of sub-total hysterectomy, now seldom performed, receive less attention than do the alleged dangers (viz., damage to the ureters or a resultant diminution of the length of the vagina) of the removal of the whole uterus. Illustrations of the naked-eye view of pathological specimens are numerous and excellently chosen and reproduced. Further revision is required of the material used to demonstrate microscopic appearances. For instance, the microscopical appearance of the endometrium in the characteristics of chronic endometritis cannot be discerned in any of the four illustrations purporting to depict this condition, the tissue appearing normal and healthy; and the micro-representation of the alleged columnar-celled carcinoma of the cervix belies its title. The diagnosis of carcinoma of the portio-vaginalis of the cervix by Schiller's method is described. No attention is drawn to the fact that a carcinoma of the cervical canal or of the body of the uterus can be present above what is shown to be, by this easy method, a normal healthy vaginal cervix. Apart from these points the fifth edition is excellent and will prove of even greater help to the student than were its predecessors.

Benign Tumours in the Third Ventricle of the Brain

Diagnosis and Treatment. By WALTER DANDY, M.D., Adjunct Professor of Surgery, Johns Hopkins University. London: Baillière, Tindall and Cox. Pp. 171. 22*s.* 6*d.*

IN this monograph Prof. Dandy describes 21 cases of benign tumour of the third ventricle that he has

treated by operation. His work breaks new ground in intracranial surgery. It is entirely due to application of ventriculography that Dandy has been able to recognise these cases and to achieve such excellent results by bold surgery. The tumours excised include five colloid cysts attached to the roof of the third ventricle, and a heterogenous group of 16 benign tumours, many of them ependymal gliomas. Prof. Dandy excludes pineal tumours, gliomas that extend to the third ventricle from other parts of the brain, and craniopharyngeal and pituitary tumours. In the five cases of colloid cyst the tumour was completely removed, and four of the patients had been alive and well at the time of writing for periods up to ten years after operation. Of the 16 patients of the heterogeneous group, six died after operation, and the remainder were relieved or cured. Each case is reported in detail with profuse illustrations.

While the description of the symptoms and signs is in places meagre, it is nevertheless clear enough that these tumours for the most part present no certain localising signs. The one distinctive clinical phenomenon that occurs with any degree of frequency through the series is intermittent attacks of headache, visual disturbance, vertigo, weakness and numbness of the limbs, brought on by changes in posture. But, as Prof. Dandy recognises, such attacks are by no means pathognomonic of tumours in the third ventricle.

The pathological descriptions are not up to the standard of the rest of the book. No reference is made to the association of attacks of hyperglycæmia with colloid cysts of the third ventricle. The author's claim that by ventriculography it is possible to make a differential diagnosis of the type of a tumour of the third ventricle is not supported by his own work, for he has twice operated on a tuberculoma of the third ventricle and once on an aneurysm extending into the third ventricle.

This is a criticism of Prof. Dandy's statements but not of his work, which is pioneer work of fundamental importance.

Manual of Determinative Bacteriology

A Key for the Identification of Organisms of the Class Schizomycetes. Fourth edition. By D. H. BERGEY. Assisted by a Committee of the Society of American Bacteriologists. London: Baillière, Tindall and Cox. 1934. Pp. 664. 27*s.*

Bergey's Manual of Determinative Bacteriology, the fourth edition of which has just appeared, is whatever its faults and deficiencies the most notable attempt in recent years to provide a classification of bacteria and a key to their identification. Some bacteriologists consider that any scheme for the classification of bacteria is likely to be so unsatisfactory as not to be worth while. This is, however, unduly pessimistic. A certain amount of systematisation in bacterial nomenclature is much to be desired and not difficult to achieve; but there is room for acute differences in opinion as how far it should go. Bergey and his colleagues have gone a long way, further in some directions, than seems helpful. It is doubtful how far the synopsis and key provided in their book give help in identifying many of the species described, let alone giving them acceptable names. What is commonly called *Bacillus pseudotuberculosis rodentium* is included as a *Corynebacterium* with the diphtheria bacillus and the diphtheroids. We cannot understand why this well-known organism should be separated from the *Pasteurellæ*, since it so closely resembles *Past. pestis* in morphology, biochemical reactions, and even in antigenic make-up that it might almost be called a para-plague bacillus. Another point in the classification, admittedly more controversial, is the subdivision of the coli-typhoid-dysentery group into *Escherichia*, *Salmonella*, *Erbethella*, and *Shigella*. The Society of American Bacteriologists in their report of 1920 gave one generic name *Bacterium* (Ehrenberg) to these types, and this has been widely accepted. The attempt to classify the streptococci is not very successful, and it seems doubtful whether anything is gained by removing the pneumococci from the streptococci and placing them in the separate genus *Diplococcus*, though this was also done in the 1920 report of the Society of American Bacteriologists.

Certain sections of the book, particularly those on the actinomycetaceæ and other "higher" forms, are really very good, partly because morphology here gives more aid, but partly, no doubt, because Dr. Bergey and the majority of his working colleagues are more interested in non-pathogenic than in pathogenic forms. Our chief complaint of Bergey's classification is that in the light of present knowledge it classifies too much and that in going beyond the reports of the Society of American Bacteriologists of 1917 and 1920 (familiar to English readers in Topley and Wilson's and other modern text-books) it may hinder rather than help the general acceptance of a working scheme of classification. A note opposite the title-page reminds us that the classification has not so far been accepted by the Society of American Bacteriologists and that it must not be taken in any sense as "official or standard."

A generally acceptable classification of bacteria, if it is ever devised, will call for a fine display of scholarship combined with common sense. It can hardly be claimed that Bergey's book is outstanding in either, but it is none the less an indispensable addition to the book-shelf of the serious bacteriologist. Its treatment of the non-pathogenic bacteria alone makes it more than worth its comparatively modest price.

The Cyclopedia of Medicine

By Various Contributors. Edited by G. M. PIERSOL, M.D. Philadelphia: F. A. Davis and Co. Twelve volumes. $120.

Vols. VIII. and IX. of this work of reference have now been issued. A noteworthy section in Vol. VIII. is that on diseases of the liver and biliary tract; the commoner disorders of these organs are discussed with clarity and precision. This also applies to the account of lung diseases which is illustrated by radiograms of high standard. The two separate articles on lung abscess and pulmonary suppuration might have been combined with advantage. The principles of metabolism are dealt with by several well-known contributors and provide a useful summary of orthodox views.

Volume IX. includes several articles on nervous diseases, and sections on pleurisy and pneumonia, again with excellent radiograms. The indices are very full, and the authoritative standard evident in the volumes previously published is maintained.

The price of "The Twilight of Parenthood," by Enid Charles (Watts and Co., London), which was reviewed in our columns last week, is 7*s.* 6*d.*, and not as then stated.

THE LANCET

LONDON: SATURDAY, OCTOBER 13, 1934

A TEST OF RENAL FUNCTION

THE most important function of the kidney is to dispose of substances no longer needed by the body, with a minimum loss of those it can still use. The best examples of these opposite groups of substances are urea and water—the one a useless waste product of protein katabolism, the other the most essential constituent of protoplasm—and the best illustration of the power of the kidney lies in the fact that normal urine contains something like a hundred times more urea than is present in normal blood. It is natural therefore that some of the tests of renal efficiency should be based on the power of the kidney to concentrate urea. The problem resolves itself into a search for some simple mathematical relationship which will correlate at least three factors—namely, the urea content of the blood and the urine, and the volume of the latter—each of which is liable to significant variation in physiological circumstances. The early formula of AMBARD [1] has never been widely used in this country, and although it was for some years popular in France it has not withstood the test of time. The urea-concentration test of MACLEAN, in which the concentration of urea in the urine is determined after a large dose of urea given by the mouth, had less pretension to mathematical accuracy than AMBARD's formula and perhaps for this reason has enjoyed a wider and longer vogue. Until recently MACLEAN's was undoubtedly the most reliable and useful test available to the clinician, but it has several drawbacks. If diuresis occurs during the test (and urea itself is an effective diuretic), the urea content of the urine may fall below the ideal level of 2 per cent. in a perfectly normal subject; and, conversely, when the volume of the urine is abnormally low the concentration of urea may rise to 2 per cent. in a person with appreciably impaired renal function. Furthermore, as W. G. OAKLEY [2] has lately pointed out, the blood-urea is ignored, and since in gross nephritis this may reach extremely high levels, the level of urea in the urine can be maintained with relatively little effort at concentration by the kidney.

Clearly, then, the blood-urea and the volume of the urine must enter into the equation, and ADDIS's urea-clearance test is an attempt to meet this criticism. In actual practice the test at present on trial is a simplification, by VAN SLYKE and his associates, of ADDIS's procedure. After a light breakfast, from which milk and diuretics such as tea and coffee are excluded, the bladder is emptied and the urine secreted during two consecutive hours is carefully and separately collected and measured, its urea content being determined. Midway between the two collections a sample of blood is taken for a blood-urea estimation. Three quantities are thus determined—the volume of urine, the amount of urea excreted per hour (or minute), and the percentage of urea in the blood. Since the urea excreted must all have come from the blood, the volume of blood which has been completely cleared of urea can be quite simply calculated from the formula—

$$\frac{\text{urea content of urine}}{\text{urea content of blood}} \times \text{volume of urine per minute.}$$

When the volume of urine excreted exceeds 2 c.cm. per minute the clearance amounts to about 75 c.cm. of blood per minute, a figure which is not significantly affected by diuresis. But with urine volumes below this level the formula no longer holds good and is replaced by—

$$\frac{\text{urea content of urine}}{\text{urea content of blood}} \times \sqrt{\text{volume of urine per minute}},$$

for which the normal is about 54 c.cm. of blood per minute. The results obtained in disease are expressed as percentages of one or other of these normal figures. The above formulæ do not hold good in the case of children, where a correction for the surface area of the body must be applied.

It is too early to decide the value of this simplified test. OAKLEY [2] has recorded a series of cases of acute nephritis in which the test was performed at intervals during the course of the disease; his results show that the test may point to considerable renal insufficiency when the blood-urea lies within normal limits, and suggest that the test gives an accurate index of the progress of the disease. E. HINDEN,[3] like many American writers, has come to a similar conclusion. On the other hand, Dr. C. L. COPE, in a paper published elsewhere in our present issue, suggests that VAN SLYKE's simplifications may sometimes involve a sacrifice of reliability. In the unmodified technique of ADDIS the test is preceded by a large drink of water and a large dose of urea, the object being to subject the kidneys to the greatest possible load. Since the normal kidney has an enormous functional reserve the theoretical importance of these preliminary precautions seems clear enough and, as COPE points out, in efficiency tests relating to other organs, such as the glucose-tolerance test, a maximum load is generally applied. It is true that where the kidney is already much damaged its functional reserve has disappeared; it is always working at full load and the preliminary dose of urea and water is unnecessary. At the same time it looks as though the fuller technique of ADDIS is necessary to demonstrate those minor degrees of renal damage which give little or no clinical indication of their presence and in which the test would be most useful to the clinician. Whichever procedure is employed it is of the greatest import-

[1] Jour. de physiol. et path. gén., 1912, xiv., 753.
[2] St. Bart.'s Hosp. Rep., 1933, lxvi., 286.
[3] THE LANCET, Sept. 8th, 1934, p. 558.

ance to collect and measure the urine accurately. Residual urine in the bladder before the test, or incomplete emptying of the latter during the test, will clearly introduce grave error.

It is evident that finality has not been reached in the attempt to express the activity of the kidney in mathematical terms. The purist might suggest that the quest is hopeless, but until he has provided a definition of life the purist has little place in biology and still less in practical medicine. It seems clear at any rate that the urea-clearance tests represent an advance in diagnostic technique for which the clinician should be duly grateful.

GIFTS FROM PATIENTS

THE current report of the Medical Defence Union includes a reference to the embarrassment of a doctor upon whom a wealthy old lady, grateful for his devoted services, had pressed substantial gifts of money. At her death her relatives claimed a review of the accounts of the doctor and his partner and a refund of the gifts. Satisfied of the bona fides of the doctor, the society set itself to resist the claim. The doctor's senior partner, however, reasonably preferred in so delicate a matter to settle the dispute by an acceptable agreement to return a part of the gifts. The incident is a reminder of the legal inferences liable to be drawn wherever there exists a confidential relationship—such as that of doctor and patient or of solicitor and client—calculated to give one person an influence over another. It was a well-established principle of the Court of Chancery, as Lord Justice Turner observed in Rhodes *v.* Bate, that persons standing in a confidential relation towards others cannot entitle themselves to hold benefits which those others may have conferred upon them unless they can show to the satisfaction of the court that the persons by whom the benefits have been conferred had competent and independent advice in conferring them. The principle has been declared to be unaffected by the age or capacity of the person conferring the benefit or by the nature of the benefit conferred. The burden of proving the validity of the transaction lies on the person who obtains the benefit.

The operation of the principle is best understood by a glance at the cases in the law reports where gifts by patients to doctors have been challenged. Many of them were decided a century ago or more and the facts make curious reading to-day. The decisions show that, where the gift is of trifling amount, the courts will not interfere merely because a confidential relationship existed. But where the gift is "so large as not to be reasonably accounted for on the ground of friendship, relationship, charity, or other motives," the recipient will be required to satisfy the court that the donor had competent and independent advice and was really a free agent capable of exercising an independent will upon the matter. Such was the ruling in Allcard *v.* Skinner (1887) where the relation was that of mother superior and nun. In Dent *v.* Bennett, a case of medical relationship decided in 1839, the amount was unquestionably substantial. Bennett, a surgeon and apothecary, was blessed with a patient 85 years old who agreed to pay him £25,000 for medical and surgical assistance for the remainder of his life. The annual bills for professional attendance had previously been trifling, and the patient's health was good at the date of the agreement. After the patient's death the contract was successfully impugned. His mind and will, said the Lord Chancellor, had been strangers to the terms of the document, and he went on:—

> "When I find an agreement so extravagant in its provisions, secretly obtained by a medical attendant from his patient of a very advanced age and carefully concealed from his professional advisers and all other persons, and have it proved that the habits, views, and intentions of the deceased were wholly inconsistent with these provisions, I cannot but come to the conclusion that the medical attendant did obtain it by some dominion exercised over his patient. How it was effected, whether by direct fraud or by what other means, the defendant has by the secrecy of the transaction prevented my having any direct testimony. By that he cannot profit."

Bennett had tried to argue that his treatment of the patient had ceased before the date of the agreement. The Lord Chancellor closed this loophole. The relation of medical attendant and patient does not cease, he declared, because the patient has not medicine actually administered to him at the time, any more than the relation of attorney and client ceases because no suit may be actually in progress. This dictum was later confirmed in Rhodes *v.* Bate; where a confidential relation has once existed, the court will presume its continuance unless some positive act of discontinuance is proved.

Bennett, we must regretfully admit, was no great credit to his profession, and the law reports record other cases almost as bad. Billage *v.* Southee (1852) is one of them. Billage, a Cambridge shoemaker, had continuous medical and surgical treatment from Southee who had to recover his fees by an action in the local court. Billage subsequently gave up shoemaking and quitted Cambridge because his daughter was about to marry a peer of high degree. He had meanwhile been calling in Southee again for treatment in spite of their litigation, and he was induced to give him a promissory note for £325 in payment for these later services, although the actual fees now due were as little as £25. In proceedings on the promissory note the Court of Chancery said that Southee's conduct in obtaining the promissory note from a poor patient "just when the patient's position in life was about to be changed" was not permissible in equity. The best known of more modern cases is Mitchell *v.* Homfray, decided in 1881. Mrs. Geldard gave her medical attendant, Dr. Homfray, two cheques of £500 and £300 to buy himself a house. He told the court that he had voluntarily paid her an annuity of £40 in consideration of the £800 she gave him. Rather to the regret of the Court of Appeal, the case was tried before a jury when Mrs. Geldard's executors sought to recover the money. The jury found that the £800 was a gift

not a loan, that there was no undue influence or fraud, and that, after the relationship of doctor and patient had ended, Mrs. Geldard had intentionally adhered to what she had done. This meant judgment in Dr. Homfray's favour, and on appeal the findings of the jury prevented the judges from interfering on grounds of equity. It was admitted that Mrs. Geldard had no independent advice, and the Lord Chancellor was sorry that the jury had not been asked whether she was aware that her gifts were impeachable. The Court of Appeal contented itself with affirming the general principle which was again applied in 1902 by Mr. Justice Swinfen Eady in Radcliffe *v.* Price. Mrs. Dowling had given her doctor gifts amounting to £800. There was no suggestion that he had made misrepresentations or put pressure upon her or that she was of weak intellect or incapable of managing her affairs. Though the judge remarked upon the special fact of constant attendance upon a patient of great age and somewhat illiberal education, he decided the case on the general principle. It was incumbent on the doctor, he said, to see that Mrs. Dowling had independent advice. The doctor had failed in this duty. The result was a judgment for Mrs. Dowling's executors for £800 and an order that the doctor should pay the costs of the action.

As these two last cases show, the medical profession is not always convicted of bad faith, but something more than good faith is required. Oddly enough, the law, which is so vigilant where gifts are made during life-time to persons in confidential relationships, is ready to relax its requirements where the benefit is conferred by will. The dicta of Lord Penzance in Parfitt *v.* Lawless (1872) indicate that the mere proof of the existence of the relation of doctor and patient does not raise any presumption of undue influence sufficient to vitiate a gift by will. Whereas a gift during life-time may be set aside unless the recipient can prove the donor's free and unfettered judgment, this rule of equity does not apply to the making of wills. The case was one where a Roman Catholic priest and confessor received a bequest from a widow with no evidence of active interference, importunity, or special control. Lord Penzance indeed declared that the "natural influence" of a person in a confidential relationship "may lawfully be exerted to obtain a will or legacy so long as the testator thoroughly understands what he is doing and is a free agent"—though persuasion must stop short of coercion. It may be added that the burden of proving undue influence in order to set aside a will is always upon the party alleging it. On the other hand, if cases of this kind find their way to a jury, juries are often inclined to show special sympathy towards disinherited relatives where money has been left away from the family. The legacy-hunter has been derided by the satirists of all ages, and the medical profession will hardly be persuaded by Lord Penzance's language to "exert its natural influence" or "press its claims" to secure a share of the spoil when the patient dies.

PROPHYLAXIS AND ANAPHYLAXIS

OCCASIONS often arise when it is desirable to confer temporary passive immunity by injecting an antitoxic serum derived from immunised horses. Practitioners are sometimes reluctant to make these prophylactic injections; they are afraid not so much of "serum sickness" a few days afterwards as of the immediate anaphylactic shock which may follow this or some later injection of serum. At the same time, as A. BUZELLO [1] remarks in discussing prophylactic injections of tetanus antitoxin, anaphylaxis is really very rare considering the enormous number of patients injected. Sir DAVID BRUCE [2] reported that during the late war a million subcutaneous injections of serum in military hospitals in England resulted in 11 men experiencing anaphylactic shock, from which all recovered. Injection by the subcutaneous route, ensuring slow and gradual entry of the proteins into the circulation, was relatively unlikely to cause shock in the potentially sensitive—who must surely have exceeded 11 in number—and BUZELLO advises that for prophylaxis this route should always be employed. BRUCE'S patients received usually 500 units of tetanus antitoxin contained in 3 c.cm. of horse serum, and it appears that the ordinary prophylactic dose in Germany is one of the same number of units contained in 5 c.cm. of horse serum. Nowadays, however, refined or concentrated sera are available from which almost all the proteins have been removed, leaving only the globulins with the adhering antitoxic principle, and the use of such sera has much diminished the incidence and severity of serum reactions of any kind.[3] Tetanus antitoxin, for example, is now produced of such titre that 1000 international units are contained in 1 c.cm. of serum, and whereas at one time to inject 1000 units of diphtheria antitoxin was to introduce 2·5 c.cm. of serum into the tissues, 2500 units are now compassed in 1 c.cm. or less of the refined product.

Even so, however, the possibility of shock following primary injection of the naturally hypersensitive, such as asthmatics or those of asthmatic stock, or reinjection of those who have been sensitised by a prior injection, cannot be ruled out entirely. Of the two classes the asthmatics are those from whom trouble is most to be apprehended. Whereas inadvertent reinjection of the artificially sensitised patient rarely in adults and very rarely indeed in children results in shock unless the intravenous route is employed, primary injection of a minimal amount of *normal* horse serum at least may in the asthmatic of any age produce within a few minutes an alarming and possibly fatal attack of asthma and a generalised urticarial eruption. Hence in the asthmatic and those of asthmatic stock any attempt at seroprophylaxis and, a fortiori, serotherapy must be made with the utmost precautions. Apart from such patients BUZELLO thinks that if there is a

[1] Deut. med. Woch., July 27th, 1934, p. 1137.
[2] Jour. of Hyg., 1920, xix., 1.
[3] THE LANCET, 1933, i., 917.

history of an injection of serum some years previously then reinjection for prophylactic purposes slowly and carefully by the subcutaneous route is unlikely to be attended by trouble. If, on the other hand, an interval of weeks only has elapsed then allergy may be manifested unless the prophylactic injected is contained in ox or sheep serum instead of serum from the horse. In this he is in agreement with other workers such as R. KRAUS and D. HARLEY whom we cited in a previous article.[3] Such sera, he thinks, should always be at hand in institutions where reinjections have often to be made in potential allergics, since it is highly probable that the first injection consisted of horse serum. While sensitivity may be ascertained with considerable but not absolute certainty by injection of diluted fractional amounts of serum—intradermally as a rule but intravenously if that route is proposed later—the abolition of sensitivity (desensitisation) is more difficult and more uncertain. Several methods are alluded to by BUZELLO. If on clinical grounds it is absolutely essential to inject serum by the intravenous route into a patient actually or potentially sensitive, then he advises that preliminary intramuscular injections of serum diluted 1 in 10 should be made every ten minutes in increasing doses, beginning with 1 c.cm., then 3, next 10, and finally 25. If there are no signs of anaphylaxis then 1 c.cm. of undiluted serum may be injected intravenously, followed in 15 minutes by the slow introduction by the same route of the rest of the therapeutic dose undiluted. It appears that some German makers of serum include a small ampoule for the purpose of these preliminary desensitising doses, and this obviates opening the larger container until it is actually required for therapy. BUZELLO agrees with VON STARK that under any conditions of sensitivity, dosage, or route, anaphylactic shock is less likely to occur if the injection is made while the patient is under light narcosis such as may be required for the preliminary cleansing and trimming-up of wounds possibly infected with tetanus. For the actual treatment of shock he advises the following measures: instant interruption of the serum injection; immediate intravenous injection of 2 c.cm. of Cardiazol, and subcutaneous injection of 1 c.cm. of 1 in 1000 adrenaline, followed by the intravenous introduction of 1 c.cm. of adrenaline contained in a large volume of warm normal saline. Artificial respiration must be maintained until breathing has again become normal.[4]

It is the experience of most clinicians in this country that the use of adrenaline—which must always be ready to hand whenever or however the injection of serum is proposed—is in itself sufficient successfully to combat anaphylactic shock. But when all is said, what is the real risk in everyday practice of provoking such shock by prophylactic injection of antitoxin contained in horse serum, especially if this has been concentrated or refined? Asthmatics apart, the risk following primary injection by a route other than intravenous—which there is no point in employing for prophylaxis—is infinitesimal. The risk of reinjection for prophylaxis—asthmatics and the intravenous route again excepted—is hardly greater, especially if the patient is a child. On the other hand, great risk arises from the injection or reinjection of asthmatics with any dose by any route, and some risk from the reinjection intravenously of those who have potentially been sensitised by, for example, a previous prophylactic injection. The experience of the medical staffs of large fever hospitals, who are faced very frequently with the problem of the prior dose, is that actual sensitisation rarely results, that desensitisation is not wholly reliable, and that the phenomena of anaphylaxis require the intravenous route for their evocation. Evoked, as they rarely are when concentrated serum is used and then usually in a modified form, they are controlled by adrenaline. The asthmatic is unaccountable and is to be regarded with the utmost circumspection. He may sustain without event a massive therapeutic dose of serum injected inadvertently into a vein, or he may become alarmingly ill a few minutes after a minimal injection made extravenously.

[4] The value of adrenaline combined with artificial respiration was clearly demonstrated in a case of severe serum shock reported by J. Grant and M. M. Scott in our issue of July 14th, 1934 (p. 80).

CLINICAL RESEARCH AT GUY'S

THE intention of the Medical Research Council to subsidise a clinical research unit in another hospital now that the Rockefeller Foundation have endowed the directorship held by Sir Thomas Lewis, F.R.S., at University College Hospital, was announced in their report of 1931–32.[1] The project has now materialised at Guy's, where Dr. Ronald Grant, F.R.S., who has had experience of the organisation of such a unit as assistant to Sir Thomas, will join the visiting staff as an ex-officio member on his appointment as full-time director of the new unit. The Council will provide the salaries of the director and his assistants, with the cost of all apparatus and research material used by the unit. The hospital will provide suitable laboratory accommodation and will place and maintain beds at the disposal of the director. These arrangements are to be effective for a period of five years in the first instance.

This is the third such appointment initiated by the Medical Research Council, the neurological unit at the National Hospital, Queen-square, having been created two years ago under the direction of Dr. A. E. Carmichael. The Council are clearly pursuing their declared policy of increasing the number of higher appointments for whole-time workers engaged in the scientific study of disease in the human subject.

[1] Report of the Medical Research Council for 1931–32, p. 11.

M. E. RAY MEMORIAL FUND.—A fund to be devoted to the assistance of King's College Hospital nurses who are temporarily embarrassed, especially those requiring rest and convalescence after illness, has been established as a memorial to the late Miss M. E. Ray, R.R.C., sister-matron of the hospital from 1906–18. The capital of the fund will be placed under trustees and the income administered by a small committee of officials from the nursing staff. The committee in connexion with the fund includes Sir Charlton Briscoe and Mr. C. P. G. Wakeley.

Contributions should be addressed to Miss M. A. Willcox, R.R.C., sister-matron at the hospital.

ANNOTATIONS

THE NEW RADIO-ACTIVITY

FOR a long time past it had been almost an axiom among physicists that radio-activity was something spontaneous, which could be neither retarded nor developed by any process at their command. The conviction has indeed been so strong that for the last 15 years such interference has not even been attempted. But the Joliots have now succeeded where Rutherford himself failed by virtue of the sensitiveness of instruments which are based in principle on that devised by Rutherford and Geiger for counting the alpha particles emitted by radium. In a paper read before the International Conference on Physics held at the Royal Institution last week, Mr. and Mme. Curie-Joliot described how, when certain substances are irradiated by alpha particles, positrons are emitted for some time, the radio-activity declining in strength according to the familiar exponential law of decay. This radio-activity, although very minute in intensity, is something entirely new to science, and its interpretation is not at all a simple matter. Take the case of the element boron. If the nitride of boron is irradiated by alpha rays, and then heated with caustic soda, gaseous ammonia is liberated. The radio-activity separates from the boron and is carried away with the ammonia; by irradiating boron something else has been made radio-active. Here is an analogy with the loss and subsequent growth of uranium and thorium salts, studied with such effect by Crookes and by Rutherford and Soddy. The Joliots came to the conclusion that what they had really done to the boron was to disengage a radio-active nucleus which was an isotope of nitrogen, and for this substance they propose the name radio-nitrogen. Similarly by irradiating magnesium and aluminium two new bodies are formed, radio-silicon and radio-phosphorus. Still later they found that isotopes of aluminium can be formed by the irradiation of three dissimilar elements. Prof. Enrico Fermi, who also contributed to the discussion, showed that under slightly different conditions of bombardment—namely, by the particles known as neutrons—he could induce a condition of artificial radio-activity, though of very slight extent and duration.

So transforming are these discoveries that whereas hitherto radio-active bodies have been regarded as the exception amongst the elements known to chemical science, they are now seen as the survivors of an age when all the elements were radio-active; what the experimenters are now doing is to induce in the ordinary elements a condition which was in past ages spontaneous. This discovery has been a sequel of the identification of several new components of the atom. There is no reason to doubt the existence of the positron, the counterpart of the negative electron; of the neutron, which by its name implies a particle devoid of electrical charge; and of the diplon, the nucleus of the rarer type of hydrogen. About the possibility of still another, the neutrino, opinion is very tentative. Physical laboratories everywhere are investigating the effects which these radiations when isolated may have upon matter. What effect, it will be asked, are these discoveries to have upon the medical use (say) of X rays and radium? Will they lead to the artificial production of bodies as active as radium in marketable quantities, and will the old types of radiation—beta, gamma, and X rays—be discarded for the positrons and neutrons? It is related of Faraday that after expounding one of his discoveries a lady approached him and inquired "What is the use of it?" and he replied, "Madam, what is the use of a baby?" It should be borne in mind that at present the new radio-activity can only be detected by means of instruments of extreme delicacy and refinement. For any practical application substances far more energetic than these artificially radiant bodies would be required. But the improbability of material reward will not deter the men and women who are engaged in elucidating the interaction of matter and radiation.

RECURRENT DISLOCATION OF THE SHOULDER

SEVERAL interesting observations are recorded by Ivan Hermodsson in his monograph[1] on dislocations of the shoulder-joint. By a special radiological technique he has demonstrated a lesion of the head of the humerus in a large proportion of cases of recurrent dislocation, and he advances good reasons for thinking that in origin the injury is closely allied to the rather common fracture of the greater tuberosity of the humerus. His view is that the humerus, in both instances, is injured by the impact of the lower part of the glenoid lip at the point where it rides over it in downward and forward dislocations. The lesser lesion is a compression fracture of the postero-lateral part of the head at its junction with the greater tuberosity. This part of the bone is somewhat thin, owing its origin to the ossification centre in the traction epiphysis of the greater tuberosity, and not to the pressure epiphysis of the head. No loose fragment is torn off; the outer layer of bone is driven into the floor of the depression caused by the impact of the glenoid rim. In a radiological study of 92 cases of shoulder dislocations, of which 23 were recurrent or habitual, the compression fracture was found to be commonest in the habitual. Its presence was also demonstrated in the "traumatic" (non-recurrent) cases, especially where more than 24 hours had elapsed before reduction of the dislocation. The special technique used to examine these joints is a form of tangential projection of the head of the humerus, and the lesion appears as a thickening of the bone at the site of the depression.

Of the 69 cases of "traumatic" dislocation, 29 were complicated by a fracture of the greater tuberosity; and it is noteworthy that Hermodsson never found this fracture in association with habitual dislocation; in his series, indeed, this was the most striking difference between the two classes. Various reasons have been put forward to explain why fracture of the greater tuberosity is almost always a complication of dislocation, and hardly ever an isolated lesion. It has been held for example that the process is torn off by outward rotation of the bone; that it is avulsed by pressure against the acromion; and that the lesion occurs during extreme abduction of the arm against a fixed scapula, the tuberosity being avulsed by its pressure against the upper part of the glenoid lip. Hermodsson's opinion is that during certain dislocations the lower part of the glenoid lip engages the surgical neck of the humerus on its exit from the glenoid fossa. As the head of the bone proceeds further the tuberosity is torn off. This opinion is based on radiological observations of

[1] Hermodsson, I.: Die Traumatischen und Habituellen Schultergelenkverrenkungen nach vorn und nach unten, Acta Radiologica Suppl., XX., Stockholm, 1934.

fractures before and after reduction, and no evidence was found that the injury takes place during reduction of the dislocation. In cases of recurrent dislocation the average age of the patients on the first occasion was 29. This contrasts sharply with the average age in the non-recurrent cases (49), and encourages the idea that some people have an inborn tendency to dislocate the shoulder.

CHRONIC RHEUMATIC POLYARTHRITIS

In a lecture to the Hunterian Society, of which we printed a summary,[1] Dr. Jacques Forestier related a long series of cases of rheumatoid arthritis three-quarters of whom lost their pain and much of their disability after treatment at a spa with injections of gold salts. Our correspondence columns also contain evidence of a more hopeful outlook for sufferers from rheumatoid arthritis. Scandinavian experience confirms this. Dr. A. Tanberg writes[2]: "The pessimism which formerly marked the attitude of doctors towards this disease and its evolution has undoubtedly during recent years given place to a more cheerful view." He is here referring to investigations conducted in 1926 by the Swedish sickness insurance authorities who followed up the subsequent careers of those patients who were given institutional treatment in the period 1915–23. It was found that from three to ten years after the completion of treatment, about 62 per cent. were so well that they could wholly or for the most part earn their own living. Yet the overwhelming majority of these patients had been quite unfit for work when treatment was instituted. Exactly the same figure, 62 per cent., has been found by Dr. Zimmer at Prof. Bier's clinic in Germany. Be it noted, however, that these achievements refer to institutional treatment; in Dr. Tanberg's opinion the results of treatment under ambulant conditions are much inferior. The Swedish investigations also stress the value of early treatment; 75 per cent. of the patients receiving institutional treatment within a year of the outbreak of the disease were restored to more or less full working capacity, whereas this was the case with only 57 per cent. of the patients who did not receive treatment till their disease had lasted three years or more. After thus proving his case for early, institutional treatment, Dr. Tanberg states that when the outbreak of articular symptoms has coincided with signs of acute disease in the teeth or tonsils, it is fairly safe to promise the patient a successful issue from dental extractions or a tonsillectomy. But the tonsillectomy which is no more than a bow drawn at a venture and which does not depend on the clear evidence of synchronous inflammation in throat and joint is apt to prove futile. Indeed, it would seem that in the Scandinavian countries—as possibly in England—the doctrine of focal infection is losing ground as far as the teeth and tonsils are concerned in relation to polyarthritis. Growing attention is being paid instead to intestinal diseases, notably chronic colitis, as the source of polyarthritis. Dr. Tanberg is less impressed by the results of specific vaccine treatment than by those of non-specific irritation-therapy—e.g., the injection of foreign proteins, combinations of iodine, sulphur, formalin, formic acid, and various metal salts. What matters more than choice of remedy is the mode of administration of whatever drug is used to stimulate the organism to mobilise its defences. Instead of changing from one substance to another it is wiser to familiarise oneself with the action of one, and to proceed tentatively in each case till the happy mean is reached between no reaction and one that is too violent. It is well after a course of such treatment to give the patient a holiday from it for a couple of months instead of fussing with the same or some other treatment; and if the patient has a rectal temperature of 37·7°–38° C., as he surprisingly often has, he should be kept in bed as strictly as if the same temperature were due to tuberculosis. Dr. Tanberg's experience will find an echo in our own spas.

[1] THE LANCET, Sept. 22nd, p. 646.
[2] Nord. med. Tidskr., Sept. 15th, 1934, p. 1204.

BILE SALTS IN PNEUMOCOCCAL EMPYEMA

As long ago as 1900 Neufeld described a reaction which has proved of great value to bacteriologists in distinguishing cultures of the pneumococcus from those of allied species. The test depends on the remarkable lysibility of the pneumococcus in natural bile or in weak solutions of various bile salts. It is melancholy to note that some 30 years seem to have elapsed before serious efforts were made to apply this property to human pneumococcal disease. Lately, however, bile salts have been tried in the treatment of empyema in the hope that when they were introduced into the pleural cavity the pneumococci would undergo lysis as they do in the test-tube. At first commercial sodium taurocholate was employed[1]; but later the purer sodium desoxycholate (introduced into bacteriology by W. Mair in 1917) was substituted[2] and no toxic effects were noted with it in the concentrations used. An improvement in the method has been recently suggested in these columns,[3] based on the in-vitro observation that the lysibility of pneumococci in desoxycholate is greatly increased if sodium chloride is present in relatively high concentration. Transferring this observation to clinical conditions it is suggested that before introducing bile salt into the empyema cavity the latter be washed out with hypertonic saline, leaving enough to provide a suitable concentration of electrolyte. Caution is clearly necessary in selecting the strength of the salt solution used, since highly concentrated solutions may have an irritant effect on tissues, as was shown by Sir Almroth Wright in his studies of war wounds.

The bile-salt treatment of empyema seems to deserve a fair clinical trial, two indications being metapneumonic empyema, and tuberculous pyothorax with secondary pneumococcal infection. If it prove successful it will demonstrate the value of a knowledge of bacteriology in studying medical problems.

THE SURGICAL TREATMENT OF AURAL VERTIGO

Some useful and pertinent observations on vertigo of aural origin, with especial reference to the question of surgical intervention, have recently been made by A. Hautant.[4] He makes no claim for originality, but points out that it is 30 years since some English surgeons, notable among them being Richard Lake, attempted the treatment of aural vertigo by destruction of the sensory apparatus of the labyrinth. According to Hautant, several varieties of aural vertigo may be distinguished. Some patients, nearly always women, after surgical interventions on the ear, and particularly after labyrinthine and cranial

[1] Cocchi, C.: Pediatria, 1931, xxxix., 1162; Schwartz, E.: Kinderaerztl. Praxis, 1932, iii., 542; Thomson, A. P.: Proc. Roy. Soc. Med., 1933, xxvi., 1538.
[2] Sworn, B. R., and Cooper, T. V.: Brit. Med. Jour., 1934, i., 1117.
[3] Anderson, A. B., and Hart, P. D'Arcy: THE LANCET, August 18th, 1934, p. 359.
[4] Bull. de l'Acad. de méd., 1934, cxi., 933.

disturbances, suffer from a kind of constant vertigo, instability accompanied by anxiety and agoraphobia, while the functional tests produce extremely violent vasomotor reactions; such patients do not have true vertiginous crises, and their treatment is not surgical. The real vertiginous crises, on the other hand, show quite different characteristics: they come on in attacks separated by completely normal intervals of days, weeks, or even months; during the attack there is marked nystagmus, usually towards the sound side, while between attacks the vestibular tests are slightly diminished or sometimes quite normal. The deafness in the ear which is causing the symptoms is always severe and progressive. Such cases may be divided into two groups, those due to middle-ear suppuration, and those connected with a process of sclerosis of the internal ear. Of the former, if the suppuration is in an active stage, radical cure of the infection is followed by cessation of the vertigo; but where suppuration has long ceased and cicatrisation is complete, relief can only be brought by opening the labyrinth. M. Hautant has performed this operation on 30 such patients with complete and permanent cure. In the second group, with sclerosis of the labyrinth, he has also operated with success; he does not suggest operation in all these cases, for it is well known that in most of them the symptoms tend to diminish in course of time, but he believes that opening the external semicircular canal is the final resource in vertigo characterised by incessant and very violent attacks which resist all medical treatment. He has operated on 13 patients in this group; in seven of them complete cure has been achieved which has lasted from one to ten years, and in four the attacks have diminished in frequency and severity; there has been no improvement in two patients, but none has been made worse. The technique he recommends is of two kinds: when a radical mastoid operation has already been performed for chronic suppuration, thus exposing the promontory, he removes the osseous bridge between the oval and round windows; when there has been no previous surgical intervention, he exposes and opens the external semicircular canal after simple antrotomy. The operation is not new, but it might well be practised more often in the most severe of these distressing cases.

THE HÆMOPOIETIC ACTIVITY OF HUMAN LIVERS

THE preliminary observations of Richter, Ivy, and Kim [1] suggested that the human liver serves as a storehouse for the principle effective in pernicious anæmia. This suggestion has now received further confirmation from more elaborate experiments carried out by Wilkinson and Klein [2] in this country and by Goldhamer, Isaacs, and Sturgis [3] in America. The active hæmopoietic principle effective in megalocytic hyperchromic anæmias was found on post-mortem investigation to be absent from the liver of untreated cases of pernicious anæmia. It was also absent from the liver of some patients with cirrhosis of the liver and a megalocytic hyperchromic type of anæmia. Goldhamer and his colleagues suggest as a result of this observation that the anæmia in such cases is primarily due to a faulty storage of the effective principle in the damaged liver. No test, however, was made in any of the cases of the ability of the gastric juice to secrete intrinsic factor during life, and it is likely that there was primarily a failure to make the active principle in the stomach rather than to store it in the liver. Livers from partially or inadequately treated cases of pernicious anæmia in relapse or in the early stages of remission and fœtal liver showed a reduced hæmopoietic potency. Normal human livers, livers from treated cases of pernicious anæmia in active remission, and livers from patients with acute yellow atrophy and a megalocytic hyperchromic anæmia were hæmopoietically active; liver from a patient with polycythæmia rubra was abnormally potent. It is of particular interest that one fraction prepared by Wilkinson and Klein from a normal human liver not only produced a good remission in one patient but was able by passage through the liver of that patient to yield a potent fraction for the treatment of a further patient, notwithstanding that much of the active principle is probably lost during preparation of these fractions. It is possible that passage may have increased the potency of the original fraction, or that an excess may have been given, allowing for storage; or that other factors may have been brought into play by the remission, enabling the hæmopoietic system to carry on and even to store the effective principle without further supplies from external sources.

[1] Proc. Soc. Exper. Biol. and Med., 1931–32, xxix., 1093.
[2] Quart. Jour. of Med., 1934, iii., 341.
[3] Amer. Jour. Med. Sci., 1934, ccclxxxviii., 193.

THE NEWCASTLE SCHOOL

EVERY medical school has its own traits and traditions, imposed upon it largely by its surroundings. The School of Medicine and Surgery at Newcastle-upon-Tyne, which celebrated its hundredth anniversary last week, had its origin in the centre of an industrial area in which glassworks and potteries, great and small, were going strong; there were innumerable blast furnaces, rolling mills, and foundries; and on the Tyne the wooden walls of Britain were beginning to be replaced with steel. Although George Stephenson was 53 and Robert 31 the railway had not then reached Newcastle, and the 60 practitioners in the district spent a large part of their working day in the saddle. At that time most of the doctors in Newcastle itself had apprentices, and the more ambitious of them would go to the metropolis to get the necessary hospital practice to sit for a diploma. Apart from London, the Scottish universities, and Dublin, there was no medical school in the United Kingdom—all the north-country schools were founded after 1820—but about that time some medical men in Newcastle who had enjoyed special advantages began to deliver lectures to apprentices. One, Dr. T. M. Greenhow, who was later a surgeon to the Infirmary, announced in 1831 a course of lectures on the principles and practice of midwifery, although it is doubtful if the course was held, any more than the Academical Institution for the Middle Classes, a grandiose scheme which he had already propounded but which failed to secure popular support. Much more modest was the actual inception of the school, which began in an upper room over Bell's-court in Pilgrim-street, and only after this became inadequate moved into the hall of the Barber Surgeons in the Manors. Here on Oct. 1st, 1834, the first session of the school was formally opened. Of the five lecturers the most notable, described by his colleagues as a very presumptuous young man, became later, as Sir John Fife, surgeon to the Infirmary and a man of affairs. One of the eight students was John Snow, who on two occasions gave chloroform to Queen Victoria and propounded the transmissibility of cholera by water. The story of the foundation of the school, its early struggles and ultimate success, is told by

Prof. Grey Turner and Dr. W. D. Arnison, with considerable charm and distinction, in a volume [1] issued for the centenary. Two of the numerous illustrations in this book are reproduced on page 839, of our present issue, where an account is given of the centenary celebration itself. The early years of the school were stormy, for a schism occurred resulting in two rival colleges which were only reunited after the orthodox school had obtained official recognition by the University of Durham; then it was not long before the medical school in Newcastle became so popular as to have more students than the university. Throughout its history indeed the school has been remarkable for the standard of its teaching. Durham was the first medical examining body in the United Kingdom to institute a final examination conducted partly (at Durham) by printed questions and interrogation, partly (at Newcastle) by practical exercises in the dissecting room and the laboratory and by the investigation of surgical and medical cases in the Infirmary. Those two famous men, Prof. H. W. Acland and Prof. John Erichsen, examining in 1856, remarked that the test was as severe, thorough, and searching as could well be required.

THE ANÆMIAS

WITHIN the last 25 years pernicious anæmia, a disease of the blood previously fatal, has been brought within the short list of those easily curable by specific treatment. This is an achievement to which many workers in different lands have contributed, and the mass of literature which has grown up on therapy alone has reached unmanageable proportions. The concise summary by Dr. E. W. Adams [2] published to-day as one of the reports on Public Health and Medical Subjects issued from time to time by the Ministry of Health will therefore be welcomed. In less than 20 pages he has supplied a readable account of recent researches into ætiology and pathogenesis, the antianæmic principle in liver and stomach preparations, tests for potency of preparations, and the modern treatment of pernicious anæmia by whole liver, by liver extract (oral and parenteral), by gastric tissue preparations, and by other substances. Notes on the cost of treatment, on liver treatment in anæmias other than pernicious, and on the response to liver therapy in various types of anæmia conclude the report, to which a list of 70 references is appended. From the practical point of view this summary has one defect—that diagnostic considerations are ignored. The indiscriminate use of liver in moderate dosage for all patients held to be anæmic has been too prevalent. It may be wasteful both of money and time, not only because some of the anæmias fail to respond to this form of treatment and can be cured by other means, but also because, as Dr. S. C. Dyke points out on another page, in true pernicious anæmia rigorous and intensive treatment is essential, and half-hearted measures may result in the development of nervous complications or even in loss of life. It follows that differential diagnosis of the anæmias is of great moment. That it cannot be made on clinical grounds, but only by the combination of a number of laboratory procedures, is the message of Dr. Dyke's article, which forms a useful complement to the report on specific therapy issued by the Ministry.

[1] The Newcastle-upon-Tyne School of Medicine, 1834–1934. By G. Grey Turner, assisted by W. D. Arnison. Newcastle-upon-Tyne: Andrew Reid and Co. Pp. 224. 10s.

[2] H.M. Stationery Office. Reports in Public Health and Medical Subjects No. 75. Report on Recent Researches upon the Nature and Therapy of Pernicious Anæmia. By E. W. Adams, O.B.E., M.D. H.M. Stationery Office. 1934. Pp. 22. 6d.

EXAMINERS ON THE WING

THE Royal College of Surgeons of England sent representatives to Canada in 1929 and to Canada and Australia in 1931 to conduct primary fellowship examinations for candidates in those countries. This autumn migrant examiners are off to Australasia and India, and on another page we record a preliminary gathering at the Ritz last week. Since then the two furthest bound have started on their journey: Prof. Buckmaster left by P. & O. on Oct. 5th and Mr. Gordon-Taylor last Wednesday by air for Batavia, whence he will sail to Sydney. In Australasia they will find 85 candidates awaiting them, 58 in Melbourne, and 27 in Dunedin, and the written part of the examination will be held simultaneously in these centres on Nov. 29th and 30th. The viva-voce in Melbourne will be conducted from Dec. 3rd to 6th, and the examiners will then set out for Wellington and Dunedin, where they arrive on Dec. 11th and conduct the viva-voce on the 12th and 13th. Prof. Buckmaster is expected home at the end of January and Mr. Gordon-Taylor about the middle of February. Each will be assisted by assessors appointed by the Royal College of Surgeons—in Melbourne Prof. F. Wood Jones and Prof. W. A. Osborne, and in Dunedin Prof. W. P. Gowland and Prof. John Malcolm. In India 90 candidates have entered for the examination which begins in Madras on Dec. 27th. Prof. William Wright and Prof. John Mellanby, who will be accompanied by Mr. Horace Rew, the director of examinations, are to leave London by air on Wednesday, Dec. 12th, and will arrive at Allahabad on the 18th. From Allahabad they travel by rail to Madras, where they arrive on Dec. 26th. Here the assessors will be Lieut.-Colonel K. G. Pandalai, professor of surgery at Madras, and Major S. L. Bhatia, professor of physiology at Bombay. The examiners will leave Madras on Jan. 4th, and returning by air from Karachi are due in London on Jan. 14th.

THE London Medical Exhibition, to which only doctors are invited, will be held in the new hall of the Royal Horticultural Society, Westminster, London, S.W., from Monday to Friday next week. The exhibition will be open each day from 11 A.M. to 6.30 P.M.

ESTUARY MUDS AT SOUTHEND-ON-SEA.—On Oct. 2nd a small establishment for medicinal mud baths was opened at Southend by the mayor, Mr. Councillor H. E. Frith. The venture is due to the initiative of Dr. Mary Nicol, who has made some study of the medical uses of estuary muds in Germany. The mineral analysis of the *Schlick* at Wilhelmshaven and that of the Thames estuary are very similar, both being very rich in silica (60 per cent.), alumina, and iron. The organic contents and biological properties of these muds have not yet been determined. These marine deposits have a general resemblance to the well-known limans of the Crimea, which are now very largely used for rheumatic and other diseases, both in the fresh state at the coast and when dried and transported to the cities, especially for use in the winter months. At a reception in the Clifton Hotel, Dr. J. R. Walker being in the chair, Dr. Fortescue Fox congratulated the town on the first attempt to organise the medical use of estuary muds in England. Southend, he said, had special advantages as a London health resort, on the "Thames riviera," with its east-and-south climate, its three good elements—shelter, saltings, and sunshine—and the dryest winter climate in Britain. There was great need for small treatment centres at holiday resorts, where natural remedies could be scientifically applied under medical direction. Not all holiday makers were quite well, and their time at the seaside gave them a chance for some simple recuperative treatment.

PROGNOSIS

A Series of Signed Articles contributed by invitation

XXII.—PROGNOSIS OF TUBERCULOUS DISEASE OF THE HIP-JOINT IN CHILDHOOD

FOR the prognosis of any disease two things are essential: accurate diagnosis and efficient treatment. In these days of well-equipped sanatoria, staffed and visited by men trained in orthopædic surgery, good treatment is easy of attainment; we have travelled far since the days when ambulatory treatment with a Thomas hip-splint and a pair of crutches represented the ideal. Diagnosis, however, remains a most difficult problem in non-pulmonary tuberculosis, and the routine examination of cases as they come to a sanatorium discloses many errors. There can be no doubt that hip-joints have often, in the past, suffered prolonged treatment for some condition which has never been tuberculous. Diagnosis is to-day more exact, but even when the radiogram has excluded the more gross errors—e.g., pseudo-coxalgia, coxa vara, and epiphyseal trauma, and when syphilis, hæmophilia, and infective arthritis have been considered—there will always be a residuum of cases, aptly called "observation hips," in which diagnosis is doubtful and prognosis uncertain.

Assuming then an accurate diagnosis, what is meant by a good prognosis in tuberculous disease of the hip-joint? I take it to mean recovery with good general health and a joint painless and stable, for preference a bony fusion in the optimum position of function. It is true that a few cases (about 5 per cent.) recover with a fully movable joint. Such a recovery, welcome as it is, must I think cast considerable doubt on the original diagnosis. Full recovery is at least unlikely in a joint where the synovial membrane has been replaced by tuberculous granulation tissue and the articular cartilage ulcerated and in part destroyed. Recovery with fibrous union and limited movement is common in cases not subjected to operation in young children and in those who have not developed cold abscess. Such union is apt to prove irritable or painful on exertion, and these joints are liable to serious osteo-arthritic changes in later life.

From an economic standpoint the hip, like the knee, which is fused by bone rather than fixed by fibrous tissue, is the more useful. Although obviously limiting the more strenuous sports and pastimes, the resultant disability is much less than one would expect, owing to the development in the lumbar region of a compensatory mobility such as that which is found on either side of a fused gibbus in tuberculous disease of the spine. Such compensation is more easily obtained and is of greater range in the younger patients.

The usefulness of a fused hip is well shown by the excellent results nowadays obtained after an operative fusion of the hip-joint for osteo-arthritis. In social life, indeed, a fused hip is probably less of a handicap than is a fused knee, whilst as regards wage-earning the fused hip does not, in most trades, constitute a serious disability. I saw, recently, three of my patients who had recovered in childhood with a fused hip—they had been working for several years respectively as bus conductor, motor-van driver, and brewer's drayman.

Prognosis therefore involves two things: survival of the patient and recovery with a useful limb.

It is this recovery of social and economic activity which is, after all, the main part of prognosis in this condition; the outlook as regards life is never very grave, but the functional result may, unless constant care be taken, prove disastrous. Unremitting vigilance is required to ensure that the joint shall heal in a position of slight flexion and abduction with neither inversion nor eversion and with as little real shortening as may be possible. The affected limb must never be allowed to fall into a position of adduction and inversion with pronounced flexion. This result, which even to-day is occasionally seen, leads to much crippling and may call for treatment by osteotomy. I am not here concerned with the problems of fixation. Different surgeons will use different methods and will obtain equally good results if they have corrected all initial deformities and have taken steps to maintain the optimum position during the appropriate period, seldom less than two years. During this time the movement of neighbouring joints and the muscular condition of the limbs must be carefully safeguarded.

The course of the case is generally watched by *radiograms* repeated at intervals of three months. These are essential to show the grosser changes of destruction or recovery, but too much stress should not be laid on the finer points. No attempt should be made to infer healing and recalcification on the basis of slight radiographical changes; I have often been disappointed on opening a hip-joint to find that its condition was not nearly so good as had been inferred from the radiogram.

Experienced surgeons will find more help in making a prognosis from *clinical observation*. A normal, level temperature, gain of weight, appetite, and colour with increasing energy and intolerance of restraint are the best pointers to recovery.

The formation of an *abscess* does not, nowadays, evoke as much fear as it did. Provided the abscess is skilfully handled by aspiration or expression, this complication can usually be overcome. In one respect the formation of abscess may even be welcomed, since its incidence usually means an ulceration of joint surfaces so great that when healing does occur it will be a sound bony fusion.

I have not found that the look of the child is of great value in prognosis, but some attention should be paid to the *age of onset*. The younger the child, the more likely is the local disease to show a rapid progress; decalcification proceeds apace, abscesses form early and increase quickly, but, given adequate treatment, recovery is often equally rapid and complete.

Most of the treatment in this country has hitherto been on non-operative lines. It must, however, be admitted that the functional result so obtained is sometimes bad, the joint remaining unstable and irritable. The question of how far the prognosis may be improved by *open operation* is still a matter of active dispute amongst orthopædic surgeons. My own view is that whilst operation should not be done in children under 10 years of age and should be used very sparingly in the first year of the disease, there are many cases in older children which are hanging fire, and these can be substantially benefited by some form of extra- or intra-articular graft. My preference is for an intra-articular graft derived from the upper end of the femur. The operation is

simple and safe, and can do much to ensure a stable joint in good position. In trying to give the conclusions I have reached on prognosis in this condition I have avoided statistics; they are notoriously difficult to interpret in relation to tuberculous disease, where the variables include climatic conditions as well as efficiency of treatment, and the personal equation of the surgeon as to what he is pleased to consider a cure. The following remarks must therefore be read as applying to the practice of one who has for 30 years been engaged in the treatment of non-pulmonary tuberculosis in a smoky industrial city of the north, the great majority of the cases having been treated in a hospital not more than four miles from the centre of the town. Such conditions, with their absence of heliotherapy, cannot be compared with those available on the shores of the Channel or in certain centres on the Continent. The outlook for non-pulmonary tuberculosis is less good in the north of this island than in the south; unfortunately no method of ultra-violet radiation can replace the light of the sun.

On the whole it may be said that tuberculosis of the hip does constitute a definite, though not very grave threat to life. During 30 years the deaths from acute dissemination in cases under my observation have shown a steady average of 2 per cent. During the earlier part of this period the death-rate was high, reaching as much as one in seven. Many cases were formerly admitted with infected sinuses, and even with early amyloid disease; this latter now so rare as hardly to be worth mentioning. In recent years, owing to earlier diagnosis and more efficient treatment, prognosis has improved, and if cases discharged as "apparently cured" are followed into adult life the deaths, directly or indirectly attributable to the disease, will be found to be under 10 per cent. A certain number of the older patients die from pulmonary tuberculosis, the actual cause of death being often a terminal infection of the kidneys.

The prognosis as regards function is good. I have found the great majority of my former patients engaged in active and sometimes arduous work. It must, however, be remembered that under conditions of bad environment and ill-health old-healed sinuses may reopen. Moreover, owing to the limitation of activity, some of these patients, especially the women, tend towards middle life to become too fat and heavy with inevitable increase in their invalidism. Finally, I would remind all those concerned that in spite of the mass of work done in the attempt to devise exact laboratory tests based on the various contents and reactions of the blood-serum, no reliable guide to prognosis in tuberculous bone infections has as yet emerged. Prognosis must therefore still be a matter of personal impression and experience, and in any given case is liable to error.

E. D. TELFORD, B.Chir., F.R.C.S.,
Professor of Surgery, University of Manchester.

OPENING OF THE MEDICAL SCHOOLS

LAST week we published parts of five addresses delivered on Oct. 1st at the opening of medical schools in London. Passages from two further addresses appear below. Mr. Fagge spoke at Guy's Hospital on Oct. 3rd, and Prof. William Wright (whose speech is reported) at the Royal Dental Hospital on the 5th.

DARE QUAM ACCIPERE

BY C. H. FAGGE, M.S.
CONSULTING SURGEON TO GUY'S HOSPITAL

COMMITTEES under the ægis of various important bodies are attempting to deal with the difficult problem of the medical curriculum. Hitherto, escape has been found by allowing the medical course to encroach more and more upon the school period. Whatever may be the outcome of the deliberations of the curriculum committees, it is my earnest hope that no predatory hands will be further laid upon the school period which is, in my judgment, already overweighted. In an endeavour to give students the chance of learning something of everything in medicine and its allied sciences, may we not lose sight of the importance to the doctor of general education.

It is difficult to know what qualities, what type of knowledge, what gifts ensure success in general or consulting practice, but surely Osler was pretty near the truth when he wrote, "In no profession does culture count for so much as in medicine, and no man needs it more than the general practitioner, working among all sorts and conditions of men, many of whom are influenced quite as much by his general ability which they can appreciate, as by his learning of which they have no measure."

The chief effect of pushing the premedical subjects further and further forward into the school period has been to deny to the embryo doctor in his most receptive years a nodding acquaintance with the classics and a real appreciation of the lessons of history. I maintain that these are serious blots upon his education as a citizen and as a doctor; not because I have any desire that every medical student should know the date of the Battle of Waterloo, but because knowledge of languages, and of nations, provides, in my judgment, the soundest basis for learning in its widest sense.

It has been said that "a medical education ought to be as efficient an equipment for public life as any other." The call to men of culture and refinement to take their part in public life was never louder, never more insistent than it is to-day when, in all parts of the Empire, the uneducated, through the power which increasing ranges of suffrage have given them, threaten even national existence by ignoring primary economic principles. As a profession we have been too prone to escape from such obligations by asserting either that their performance was impossible owing to urgent calls, or that politics should have no part in a professional man's life. But if we claim to possess in medicine brains equal, if not superior, to those of the Bar and of other professions from the ranks of which politicians are mainly recruited, have we any right to deprive the State of help which our leaders can offer in advice and direction? Though to every one is not given the opportunity or perhaps the temperament for public service, there is no need for any medical man wishing to take part in some form of non-professional work to step into municipal or political life. There is in every town so great a need of willing workers, to run medical societies, edit medical journals, or to administer benevolent funds, that no one can excuse himself of a duty which I submit each one of us owes to the State and to his profession, on the grounds that no opportunity exists for the exercise of such activities.

Two years ago I paid a typically American visit to Australia and New Zealand. The two characteristics of the peoples of these Dominions which most impressed themselves upon me were their intense and universal imperialism and their regard for tradition, coupled with a longing for the traditions of the old country.

Well, Guy's teems with traditions. These are the shackles which she places on each one of us as the price, and at times the heavy price, of being allowed within her gates. These we have to live up to or at least have to make a reasonable attempt to do so. Now I am not sure that the inhabitants of the newer countries are happy in envying us our traditions: as I told them on one occasion, they should bear in mind the retort of the aged Marshal of France, Pierre Lefèbvre, when twitted upon his origin by some of the scions of the old nobility at a banquet given in his honour by Napoleon: "You are descendants! I am an ancestor!" So I tried to reassure my Australian audience that they were perhaps happier in being able to create their own traditions and establish their own schemes of town planning and architecture.

The present-day Australian, and the New Zealander no less, is an out-and-out imperialist, and the needs, demands, privileges, and duties of the Empire and its citizens are in these Dominions the topics of everyday conversation. How often does one hear the Empire mentioned in this country, save as a catchword in election addresses?

If I leave you no other thought worthy of subsequent meditation, I would impress upon each one of you the urgency of the opportunities which now exist of taking hold of the outstretched hands of our brothers "down under." Such chances, if now scorned, may not occur again. If the British Empire can be brought into complete accord it should be a force in the world for good inestimable. There are several small ways in which each of us can help this project which needs no government subsidy. They desire sympathy and affection; gestures of friendly feeling are of more value than financial benefits.

Each New Zealand medical student spends a year in clinical work at one of the four medical centres—Auckland, Christchurch, Dunedin, or Wellington—and after graduation at the end of a six years' curriculum often seeks wider clinical experience in other countries, usually in England. Would it not be equally of advantage to every English graduate to spend six or twelve months after qualification in the Dominions, seeing other hospitals, sampling their teaching, and by a sympathetic interest in their problems, doing something to strengthen their attachment to the mother country? Once established in practice or in some appointment, travel is impossible; therefore, if you can, immediately after qualification, seize the chance of a *Wanderjahr* and study some part of the Empire first hand. By financing such a scheme one of our wealthy imperialists might establish an undertaking capable of results scarcely less important than those which have been the outcome of the vision of Cecil Rhodes.

The meaning of imperialism to the individual is at once apparent if we embrace Curzon's definition of it as "a sense of sacrifice and the idea of duty." Unless a man is prepared for much unselfishness he should not enter our profession, so every medical man should be a keen imperialist and happy in his sacrifice.

* * *

We are inclined to think chiefly of what we may get out of Guy's; but do not suppose that in your transactions with your alma mater, her motto will prove to be all give and no take on her part. From the moment you enter the Dean's office and sign your name in one of his large books you have sold your soul to Guy's, a most exacting mistress, who quite persuades her children that every demand she makes upon them is for their good and pleasure. Yet no one of us, enslaved by her for many years, would, if we could, be freed of the chains which bind every Guy's man, in whatever part of the world he may be found, to the service of the sick and the love of his hospital. So if it be true that "service is the key to happiness," need one look further for the reason why most of us are so happy at Guy's?

THE SUCCESSFUL MAN

By William Wright, D.Sc., F.R.C.S.
PROFESSOR OF ANATOMY IN THE UNIVERSITY OF LONDON, AND DEAN OF THE LONDON HOSPITAL MEDICAL COLLEGE

What does one really mean by success? Some may think of success in terms of great professional distinction, some in terms of large possessions. Personally I like the definition of the successful man which was given many years ago by Plato: the man who, when it becomes his time to depart, leaves "with the goodwill of all, with goodwill to all, and not devoid of hope." Through my whole life I have always regarded that definition as embodying the best type of success; one which owes nothing to fortuitous circumstance and which is within the grasp of everybody.

How can this success be attained? Two important steps towards it are the retention of your individuality and the cultivation of your personality. To retain your individuality is not an easy thing in these days. The great rush of life, the large mass of interesting information which is pressed upon us, the short time which is given for thought and reflection, all have a deadening effect, and it takes some effort to retain such individuality as we have. We tend to slip back, to become members of the common herd. We may retain our individuality by refusing to do many of the things which we are asked to do. We must refuse to be rushed; we must be selective as to the information which we receive; and lastly, we must insist upon having a certain time for thought and reflection. If we do these things we can preserve our individuality; if we do not, we are in danger of losing it, and if you lose your individuality you lose the most interesting and precious possession that you have. Anyone who, in the later years of life, has to take his opinions from other people has become spiritually dead.

The cultivation of the personality is a matter of education. Theories are held by certain people that heredity is everything and education nothing. On the other hand, some people think that education is a good deal and heredity not so much. Not to believe that education can do something is the negation of all effort. We must assume that education can do something, but how much is another matter. Although education goes on through life, there are certain periods when it is more active. The education which you get at the public school is almost trifling. What you get—and it is very important that you should get them—are the instruments for educating yourself. You learn the alphabet in many sciences and arts. You are trained in the principles of education. But that you receive much education, according to my definition, I doubt.

On leaving school you go to your medical college, and there the claims made upon your time—the development of technical skill and the acquisition of professional knowledge—are so great that there is little time for education. It is only when the doors of your professional school close upon you that your education really begins. Your personality, which has been enchained for very many years, is now given to you yourself, free and unfettered, and the question is: what are you going to do with it? The reply, surely, is that you should cultivate it.

How can it be cultivated? First, by the study of nature. For many thousands of years man has been in intimate contact with nature. He remained so almost up to the middle of last century, when the present wave of industrialism swept people into the cities. It would be surprising if that long experience had left no impression upon him, if there were no close relationship between man and nature. Nature, not the tenderest, not the most sympathetic of teachers, is still the oldest, the wisest, and the best. All the important facts of life can be learnt from the study of nature. But with nature, as with everything else, it is a case of knock and it shall be opened, seek and you shall find. You have to go to nature with knowledge, confident that knowledge will beget interest and interest beget love. When you have done all those things, you will find that you have come to community with nature, and you will get a heart's ease and a philosophic calm which I do not believe you can get in any other way. You must frequent the mountains and the sea, and occasionally frequent them alone; you must study nature in all her moods—tempestuous, calm, smiling, and sullen—in order to reach this communion with her. This I believe to be the best way of qualifying, in the Platonic sense, as a successful man.

Another way in which your personality can be cultivated is by the study of good literature. I say "good" literature, because great discrimination is required—particularly at the present time, when so much literature flows from the press. Nearly 300 years ago a great English writer of prose said: "He that perpetually reads good books, if his parts are answerable, will have a huge stock of knowledge." If you discriminate between the superficial and the deep, the ephemeral and the lasting, and avoid particularly books about books, you can get a very large stock of knowledge. I have found particular interest in the reading of history in associating archæology with it. I have also found great pleasure from the study, now and again, of an author or a period intensively; so as to live with him, gain his companionship, and see his point of view on many of the decisive matters of life; or obtain so vivid a picture of the period that you may walk, for instance, in Leicester-square, with familiar ghosts such as Hogarth, Isaac Newton, John Hunter, and Joshua Reynolds. You might think that whoever followed this advice would become a stodgy sort of person, and something of a recluse. I do not see why, occasionally, you should not—to adopt Horace's phrase—"desipere in loco." You will have no lack of incentive to that kind of reading, but I beg you to give the more classical solid type a chance. Another practice I have found of advantage is the memorisation of verses, like some of the passages of Shakespeare or the sonnets of Milton and Wordsworth. In troublous times you may get very real help from the remembrance of these little "ends of verses," or of incidents, such as the old Saxon's description in Bede's "Ecclesiastical History" of man as a bird that flies from the night into the warm, lighted hall and after a short space flies out again through another door into the dark; or the reply of the Spartan who, when told at Thermopylæ that the shafts of the Persians were so numerous that they would obscure the sun, retorted "Then we fight in the shade."

Lastly, nothing is more potent in the cultivation of personality than friendships. In an old Icelandic poem, one of the oldest poems in European literature, we are told that if you have a friend you should visit him often, for the road will be grown over with grass and bushes quickly spread over it if it is not frequently trodden. You should regard a friendship as a very valuable asset, and see that you fulfil its obligations. Goethe says: "When you have a friend, do what you can for him; it will be a bitter thought, when you see him cold and stiff, to think of the things which you might have done."

I will close with a statement of fact, and then with a warning. The fact comes from Omar Khayyam—

> "Whether in Naishápúr or Babylon,
> Whether the cup with sweet or bitter run,
> The wine of life is oozing drop by drop,
> The leaves of life keep falling one by one."

The warning is from what is perhaps the most important and valuable address that was ever given to students: that of Carlyle when he was rector of the University of Edinburgh. Carlyle, warning the students of the importance of taking a serious view of things and of paying attention to the great thoughts of the past, concluded:—

> "Heard are the voices,
> Heard are the sages,
> The worlds and the ages.
> Choose well! Your choice is
> Brief, but unending."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 29TH, 1934

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 1 (Long Eaton U.D., Derby); scarlet fever, 2937; diphtheria, 1374; enteric fever, 28; acute pneumonia (primary or influenzal), 497; puerperal fever, 32; puerperal pyrexia, 116; cerebro-spinal fever, 8; acute poliomyelitis, 31; acute polio-encephalitis, 2; encephalitis lethargica, 10; continued fever, 1 (Wandsworth); dysentery, 11; ophthalmia neonatorum, 92. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 8th–9th was as follows: Small-pox, 2 under observation; scarlet fever, 1617; diphtheria, 1546; measles, 246; whooping-cough, 238; puerperal fever, 18 mothers (plus 8 babies); encephalitis lethargica, 269; poliomyelitis, 7; "other diseases," 273. At St. Margaret's Hospital there were 17 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 5 (1) from measles, 6 (0) from scarlet fever, 6 (0) from whooping-cough, 41 (9) from diphtheria, 50 (18) from diarrhœa and enteritis under two years, and 17 (4) from influenza. The figures in parentheses are those for London itself.

Acton and Leeds reported the two deaths from enteric. Fatal cases of diphtheria occurred at Leeds, Liverpool, Manchester each 3, Dagenham, Portsmouth, Bootle, Rhondda each 2. Liverpool reported 6 deaths from diarrhœa, Leeds and Middlesbrough each 3.

The number of stillbirths notified during the week was 254 (corresponding to a rate of 40 per 1000 total births), including 40 in London.

POST-GRADUATE LECTURES

CONTINUING our series of lectures lately given to old students of London teaching hospitals we publish this week summaries of those delivered at King's College Hospital by Dr. Firth and Mr. Gilliatt.

THE MANAGEMENT OF DISEASE IN OLD AGE

(DR. DOUGLAS FIRTH)

THE first question which arises is whether the patient should be put to bed, and save for certain specific illnesses the answer is emphatically NO. Acute toxic conditions, as lobar pneumonia, or cardiac crises, as coronary infarction, call for the restraint of bed, but chronic conditions, as bronchitis and the broncho-pneumonia which unfortunately is often the sequel to it, do badly when put to bed. Confinement to a suitably warmed room in an armchair is usually sufficient, provided the nursing is competent.

The physical reasons against bed are weighty. The risk of hypostatic pneumonia is well known, but I do not think the rapidity with which the aged develop bedsores is sufficiently appreciated. Prevention is better than cure, so if confinement to bed is considered necessary, it is better to get the reputation for being over-fussy and put your aged patient on an air-ring or water-bed without delay, possibly with heels and elbows suitably padded, rather than be met after 48 hours with the doleful news that all is not well over the pressure points.

But there is another and perhaps more important reason for the avoidance of bed and that is the psychological state of the patient. Regression accounts for the phenomenon of second childhood, and like children the aged are easily and illogically frightened. Past experience associates retirement to bed with serious or fatal illness, a thing they have seen again and again during a long life. Put them to bed and they become filled with nervous apprehension which, unless combated by the doctor in charge, rapidly degenerates into profound depression and the loss of the essential will to live.

Strange as it may seem, the majority of senile patients cling to life and fear death, although this fear commonly disappears shortly before death itself, when it is regarded as a welcome release. Many of you will remember William Hunter's last words: "If I had strength enough to hold a pen I would write how easy and pleasant a thing it is to die."

Therefore the will to live and the hope of recovery must be encouraged and the loss of self-restraint and self-respect met by a cheerful optimism on the part of the doctor in which mild jokes, cheerful chaff, and the avoidance of sympathetic condolence all play their parts. Remember we are dealing with second childhood when the old adage "little things please little minds" has again become true, and if the aged are easily upset, they are, like children, easily reassured and comforted by those in whom they have placed their confidence. But you can only jest in this fashion with elderly patients when you know them. Again, like children, they often resent what seems to them familiarity at an early stage of acquaintance.

Trained assistance should be procured early; the efforts of the family or trusted maids lead only too often to irritation or worse, failure to carry out essentials of nursing which may seriously prejudice the course of the illness. Again and again we hear the complaint "Mother will not do as I ask her."

When possible a censorship should be imposed upon visitors! The Mrs. Gummidge type are better forbidden altogether for they can in a few moments reduce an elderly patient to gloom and despair, and exaggerated as the type described by Dickens may seem, it does exist. In any case the number of visitors and the duration of their visits should be limited, for concentration is impaired and mental fatigue easily induced in the aged; but at the same time it is wise to allow selected visitors under suitable restrictions, for they provide a valuable source of interest in an otherwise dull day and have a tonic effect.

The question of sleep is often a problem; as age increases, in the absence of interest to fix the attention, cat-naps become more common and nights more broken—really an exaggeration of the usual interrupted sleep of the aged which is less continuous than in younger persons. In addition the interruptions of sleep appear to be much more serious than they are, in number and time, so that complaints of bad nights may be frequent, and unfounded. If possible, hypnotics should be avoided, the usual general measures being employed. Leonard Williams considered that the bromides, drugs commonly used, were definitely contra-indicated as likely to give rise to mental confusion, and if persisted with, to produce vascular thrombosis and impairment of the mental powers, even with a normal dose.

Bedsores, to which I have already alluded, are not the only unpleasant surprises which may arise during the nursing of an aged patient. Diminished resistance to infection and arterio-sclerosis so impair the vitality of the tissues that even a slight trauma such as close cutting of the toe-nails may be followed by gangrene. Rolleston refers to the blunting of sensibility to pain in old people as a beneficent process, but it also brings some dangers; therefore the nurse should be warned to exercise the greatest care in the use of hot bottles, poultices, and Thermogene wool moistened with spirit, for burns occur on the least provocation. Not only this, but any breach of surface, owing to lack of resistance, carries a great risk of erysipelas, and the prognosis of this complaint is very grave at the latter end of life.

The management of the gastro-intestinal tract calls for comment. The majority of the aged are edentulous or have only a few teeth left and those in bad condition, and it is surprising how they cling to them. This, with atrophy of the walls of the stomach and the lessened activity of the secretory glands, is a common cause of dyspepsia, which is intensified during illness. In the intestines, diminished secretion and loss of tone account for the constipation which afflicts the aged. Hard scybalous masses can often be detected on abdominal examination and many of us can recollect patients who assure us that the bowels are open regularly, or who even have diarrhœa, and yet when suitable measures are taken quantities of scybala are removed. If this is so when the aged patient is in good health, it is not surprising that the care of the bowels during illness becomes an important item.

Should confinement to bed be deemed wise, I would plead for the more general use of the commode in place of the bedpan. Many of us know from personal experience the deterrent influence of the bedpan. The discomfort and the difficulty in starting an action leads to great efforts, and I think in many cases less

strain is thrown upon the senile heart by getting out and using a commode under careful supervision than will follow straining on a bedpan. Even the simple fact of being allowed to get out of bed has a psychological value.

Purgatives supply one of the few exceptions to the rule that in old age the dosage of a drug should be diminished. Provided piles are not present, the old-fashioned aloes and nux vomica pill is good, but as absorption is so slow in old people, it should be given as an after-dinner pill. Paraffin is very useful, but beware of seepage. It is not so easily noticed or promptly controlled in the aged, and may be such a nuisance as to render the use of paraffin inadvisable. Still with small doses this can usually be avoided, and a useful combination will be found in a drachm each of liquid paraffin and liquid extract of cascara, once or twice daily. These doses should be sufficient, for purgation is not desirable in old people. The more severe forms of constipation are better treated by enemata of soap and water, and it is a useful routine measure to give one twice weekly. When scybalous masses are present and difficult to remove, a warm olive oil enema of 2–8 oz. given overnight and retained and followed by the usual enema saponis in the morning will usually produce the desired result.

Meteorism is not an uncommon abdominal complication amongst old people and is a serious one. Injudicious diet is the usual factor, so whatever the illness the amount of milk must be carefully controlled. At the onset of the distention give water, glucose, and whey only by the mouth, apply hot stupes to the abdomen, and, assuming the absence of obstruction, give eserine salicylate gr. 1/100 subcutaneously every hour for four doses, and if this is ineffective, an ox-gall enema, fel bovinum purif. ½–1 drachm in one or two ounces of water. If ox-gall cannot be obtained asafoetida or rue are substituted; 2–4 drachms of the tincture of asafoetida in 4 oz. of mucilage of starch or ol. rutæ ♏30, emulsified in 2 drachms of mucilage and added to 6 to 10 oz. of enema saponis.

Those drugs which are apt to cause constipation, as iron, bismuth, and preparations containing tannin, for instance cinchona, are better avoided; and the same caution applies to morphia. The use of this last drug calls for much judgment and indeed it has been said to be definitely contra-indicated, not only for the constipation which it produces, but also for that markedly depressant effect on the cough and respiratory centres which may accumulate or precipitate the broncho-pneumonia to which the aged are so liable. But in the presence of persistent pain or incessant cough, and in the absence of the only contra-indication which, to quote the words of Lord Dawson, is a "generalised bronchitis with exudate blocking the tubes," sufficient should be given to remove the discomfort and allay the misery.

I would even advocate the use of small doses—and only small doses are needed—to produce euphoria when nervous apprehension has reached a marked degree, especially in cardiac cases. One suggestion I would make, and that is that Nepenthe should be ordered rather than tinct. opii. As far as I can see the preparation contains roughly the same amount of morphia, and administered in the same dosage, but should the prescription be seen by the patient—and it is queer how many prescriptions do find their way into the aged patient's hands—or by members of the family, its nature is unrecognised and the suggestion of doping is avoided.

In conclusion, I would venture to say that the three most important points in the management of disease in old age are: the avoidance if possible of confinement to bed, and if this is not possible, the realisation of the dangers "bed" entails; attention to the psychological aspect, especially the encouragement of the will to live; and lastly, the care of the gastro-intestinal tract.

INDICATIONS FOR THE USE OF FORCEPS

(MR. W. GILLIATT)

THE indications for forceps are, widely speaking, any conditions which delay the second stage of labour when it is desirable in the interest of the mother or of the child that delivery should be completed. The second stage of labour presumes full dilatation of the cervix.

Certain postulates must be fulfilled before forceps can safely be applied. The first is full dilatation of the cervix—or in cases of extreme urgency, dilatation to three-quarters or four-fifths. The second is the presence of pains. In primary uterine inertia the pains have been poor in character and at long intervals throughout the first stage, in the second stage forceps delivery is good treatment. In secondary uterine inertia or uterine exhaustion, where the pains once good have disappeared, the forceps should not be applied until they reappear. Thirdly, the pelvis must be big enough to transmit the child alive so that the head is not damaged in its passage. Fourthly, there should be anæsthesia, for when a woman is lying quiet and cannot wriggle about the bed or move after application of the forceps asepsis is more likely to be satisfactory. It is helpful to have an anæsthetist, though it may not always be possible. The fifth postulate is that an empty bladder is of great importance, for injury to the bladder does not occur when it is empty, but is very likely if it is full. It is a good practice to keep the blades of the forceps tied together by a rubber catheter, this rule cannot then be forgotten. And lastly, puerperal sepsis is to be avoided by careful preparation of the vulval and perineal region, by the use of sterile towels to shut off the rest of the patient and the delivery table or bed, by the sterilisation of all instruments, and by the preparation of the person of the accoucheur as for a surgical operation.

All drugs which relieve the pain of labour tend to slow the uterine action and render the use of forceps more frequently necessary. Some anæsthetics do this to a marked extent, a fact which is not in favour of their indiscriminate use in the relief of pain. Of anæsthetics, gas-and-oxygen interferes with the uterine action least of all, chloroform, on the other hand, slows down the uterine action most of all. In our maternity ward we are using, with good effect, Minnett's apparatus by which the patient can give herself a mixture of nitrous oxide gas and air.

Persistence of occipito-posterior presentations is common and a cause of great trouble and of much maternal morbidity and fœtal mortality. In the last four years in the maternity ward here forceps were applied for this condition between 2·5 per cent. and 3 per cent. of the whole of our admissions. This presentation is more often seen in the primigravida than in the multipara and it is commoner in both than the text-books say—about 40 per cent. In occipito-posterior presentations 90 per cent. to 95 per cent. of cases have sufficient flexion of the head to rotate to an anterior position. In the remainder, however, there is insufficient flexion and

the forehead rotates forwards carrying the occiput backwards.

Occipito-posterior presentation is diagnosed by abdominal palpation, the flat back of the child is not felt and the forehead is much more easily felt as it is in front instead of at the back. The fœtal heart is heard in the flank instead of 1 in. from the umbilicus. In the course of labour it is sometimes possible to foretell what will happen: on making a vaginal examination if the cervix is sufficiently dilated to admit a finger and the posterior fontanelle is felt, this is evidence of flexion of the head, and in such a case the occiput will rotate to the front. If both anterior and posterior fontanelles are felt it is evidence that the head is less well flexed, but still in a large proportion of these cases forward rotation of the occiput occurs. Where the anterior fontanelle only is felt, it is evidence of still less flexion and backward rotation of the occiput is more likely to occur. If in the second stage, where the cervix is fully dilated, there is delay and on examination the anterior fontanelle is found in front, the diagnosis of occipito-posterior presentation can be made. If the woman has been in labour long and the fontanelles are obliterated by the formation of a caput, the hand should be passed above the baby's head and the ear felt in order to recognise the position of the occiput.

The treatment is to rotate the occiput forward manually and complete delivery by applying forceps. Anæsthesia is necessary and the rectum and bladder should be empty. It is essential to carry out the same strict technique in the prevention of puerperal sepsis as described for the application of forceps. The whole hand should be passed into the vagina, the head grasped and the occiput rotated to the front. The manipulation can often be made easier by an assistant rotating the child's body in the same direction by manipulation on the abdominal wall. The manœuvre is often difficult. The head sometimes tends to slip back; when this happens one blade of the forceps should be inserted before the hand is removed —it will act as a wedge and prevent spontaneous rotation backwards. The forceps having been applied with the occiput in a forward position the child should then be delivered. Failure to rotate the head by this means may occur, and it may be necessary to pass the hand above the child's head and turn the shoulders in the required direction. This may but does not usually fail; should it do so two courses are open: first, to apply forceps and deliver the child as a persistent occipito-posterior; secondly, to attempt rotation of the head by means of the forceps. Rotation of the head by means of the forceps is a manœuvre which is not free from risk; it is only safe when the head is low in the pelvic cavity and short straight forceps can be used. When the head is high long curved forceps have to be used and there is a probability of tearing the maternal soft parts.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. E. Moxon-Browne and N. B. de M. Greenstreet to *President* for Medical Department, Admiralty; A. C. Anderson to *Victory* for Haslar Hospital; and A. C. Shaw to *Tamar* for R.N. Sick Quarters, Wei-hai-wei.

Surg. Lt.-Comdrs. T. G. B. Crawford to *Neptune*; E. V. Barnes to *Drake* for R.N.B., and to *Berwick* (on recommg.); and T. A. Cochrane and G. D. J. Ball to *President* for Medical Department, Admiralty.

Surg. Lt.-Comdr. H. W. Strong withdraws with gratuity.

Surg. Lts. S. R. G. Pimm to *St. Angelo* for Malta Hospital; and E. B. Bradbury to *Pembroke* for R.N.B.

Surg. Lt. (D.) J. C. Benson to *Medway*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lts. J. C. Livingston to *Victory* for Haslar Hospital; and E. C. Johnson to *Excellent*.

Proby. Surg. Lt. T. H. Pierce to be Surg. Lt.

ARMY MEDICAL SERVICES

Col. J. Heatly-Spencer, O.B.E., by virtue of his appointment to the chair of tropical medicine at the R.A.M. College and consulting physician to the Army, becomes a member of the Army pathology advisory committee.

ROYAL ARMY MEDICAL CORPS

Lt.-Col. C. H. Denyer, M.C., having attained the age for retirement, is placed on ret. pay.

Maj. E. U. Russell, M.C., to be Lt.-Col.

Maj. F. C. Atkinson-Fleming, M.C., retires on ret. pay.

REGULAR ARMY RESERVE OF OFFICERS

Lt.-Col. R. K. White, D.S.O., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ARMY DENTAL CORPS

Lt. C. A. Pank to be Capt.

MILITIA

Maj. C. S. Sandeman retires on attaining the age limit, and retains the rank of Maj.

TERRITORIAL ARMY

Lt.-Col. G. J. Linklater, O.B.E., to be Bt. Col.

T. A. L. Davies (late Offr. Cadet, Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

Supernumerary for service with the O.T.C.—E. Shipman (late Cadet Staff Serjt., Univ. of Lond. Contgt., Sen. Div., O.T.C.) to be Lt., for duty with Med. Unit., Univ. of Lond. Contgt., Sen. Div., O.T.C.

Capt. C. E. W. Bower to be Maj.

Lts. D. S. Valentine, G. W. Molyneux, R. A. P. Gray, D. M. Mitchell, J. D. Finlayson, R. K. Reeves, J. B. Fulton, and M. L. Formby to be Capts.

TERRITORIAL ARMY RESERVE OF OFFICERS

Lt.-Cols. G. W. Craig and W. Archibald, T.D., having attained the age limit, retire and retain their rank, with permission to wear the prescribed uniform.

Maj. C. A. Pannett, having attained the age limit, retires and retains his rank, with permission to wear the prescribed uniform.

Capt. J. N. C. Ford, from Active List, to be Capt.

ROYAL AIR FORCE

Flight Lt. J. J. Corcoran is transferred to the Reserve, Class D.

Flight Lt. (Hon. Squadron Leader) J. G. Skeet relinquishes his temporary commission on completion of service and is permitted to retain the honorary rank of Squadron Leader.

INDIAN MEDICAL SERVICE

Lt.-Col. (Bt. Col.) G. D. Franklin, C.I.E., O.B.E., retires.

COLONIAL MEDICAL SERVICE

The following appointments have been made: Dr. C. Bowesman, Dr. S. W. Cooper, Dr. P. C. Cosgrave, Dr. W. M. Quin, Dr. H. G. H. Waters, and Dr. W. R. Williams become Medical Officers, West Africa; Dr. R. Y. Dunlop, Medical Officer, Uganda; Dr. H. F. G. Irwin and Dr. R. H. Wiseman, Medical Officers, Kenya; Dr. P. P. Murphy, Medical Officer, Somaliland; Dr. M. A. Byer, District Medical Officer, St. Lucia; Dr. T. Evans, Miss C. B. Smith, and Miss E. M. O. Will, Medical Officers, Malaya.

Dr. J. Steele has been appointed Admiralty Surgeon and Agent for Aylesbury, Dr. E. A. Ellis for Ashburton, South Devon, and Dr. W. Kelly for Basingstoke.

SPECIAL ARTICLES

THE DIFFERENTIAL DIAGNOSIS OF THE ANÆMIAS*

BY S. C. DYKE, D.M. Oxon., F.R.C.P. Lond.
CONSULTING PATHOLOGIST, THE ROYAL HOSPITAL, WOLVERHAMPTON

To define what is meant by anæmia is not altogether easy; literally, the term may be taken to indicate a shortage of blood but there is no type of anæmia in which the volume of the circulating blood is significantly diminished. The red cell content of the blood is no sure criterion; there are several types of anæmia in which the number of red cells per c.mm. may be almost or even completely up to normal with a coexisting anæmia of considerable severity. In assessing degree of anæmia it is the hæmoglobin which is the important factor, but if the hæmoglobin percentage alone be considered certain states in which a considerable diminution of the red cells exists along with only slight diminution of the hæmoglobin percentage may escape detection. Anæmia must be defined as a deficiency of the hæmoglobin or of the red cells or of both.

Clinically, the differential diagnosis of the anæmias is by no means easy; it is difficult by clinical means alone to diagnose even as between anæmia and pallor without blood impairment. Anæmia is a favourite diagnosis among the lay public, particularly among women, and the patient's diagnosis is not infrequently accepted. Face colour is no indication of the state of the blood and the tint of the lips little better; something is to be learned from the conjunctivæ but not much; probably the safest purely clinical guide is the colour of the palm of the hand as compared with that of the observer.

For the diagnosis of anæmia examination of the blood is essential. Its mere presence can be diagnosed by the simplest form of hæmoglobinometer; the identification of the type can seldom be made short of a complete knowledge of the blood picture.

Thanks to recent work mainly carried out in this country and America and associated with the names of Minot, Whipple and Hurst, among many others, knowledge of the anæmias has increased greatly within the last five years. Before the advent of this recent knowledge the differential diagnosis of the anæmias was held to be an easy matter; they resolved themselves into "primary" and "secondary" with the possible addition of chlorosis in a third class by itself. "Primary" anæmia was synonymous with pernicious or Addisonian anæmia and as the condition was incurable it did not greatly matter whether the diagnosis was established or not; all the remaining anæmias other than chlorosis were "secondary." Chlorosis was supposed to have disappeared with tight lacing and the advent of women's suffrage.

The differential diagnosis of the anæmias is now much more difficult than it was in those not so far-off days; it is also much more worth while making since rational, in certain cases actually specific, treatment now exists for many of the anæmias and their identification becomes a matter of prime importance in treatment.

Morphological Classification

The anæmias may be classified morphologically or ætiologically. When only the blood picture is available, as to the hæmatologist working at his laboratory bench, morphological classification only is possible. When the patient only is available as to the clinician standing unaided at the bedside, neither is possible. Ætiological diagnosis can only be made when patient and blood picture are considered in relation to each other.

It is only within the last few years that it has become possible even to attempt an ætiological diagnosis, but now it is on this basis that rational treatment must be founded.

On the blood picture alone various classifications are possible; the morphological and ætiological classifications do not run parallel but cut across each other at various places.

The basis most commonly used for morphological classification is the size of the red cells.

From this standpoint the anæmias may be grouped into the normocytic, in which the red cells are of normal size, the megalocytic in which the red cells are larger and the microcytic anæmias in which they are smaller than normal. Most of the anæmias formerly grouped as "secondary" such as those due to hæmorrhage, sepsis, and so forth are normocytic; familial hæmolytic anæmia (acholuric familial jaundice) is microcytic and pernicious anæmia megalocytic.

Classification of the Anæmias

ÆTIOLOGICAL	MORPHOLOGICAL
1. Due to Loss or Destruction of Red Cells	
A.—By massive hæmorrhage.	Normochromic. Normocytic.
B.—By hæmolysis—	
Hæmolytic anæmia (acholuric familial jaundice).	Hyperchromic. Microcytic.
2. Due to Disturbance of Hæmopoiesis	
A.—From deficiency of factors necessary for hæmopoiesis—	
Pernicious anæmia.	Hyperchromic. Megalocytic.
Anæmia of sprue.	Hyper- or normochromic. Megalocytic.
,, ,, idiopathic steatorrhœa.	Hyper- or hypochromic. Megalo- or microcytic.
Hypochromic anæmia—	Hypochromic. Microcytic.
(1) Idiopathic (Witts).	
(2) Associated with pregnancy.	
(3) "Chlorosis."	
(4) Of infants.	
Anæmia of hypothyroidism.	Somewhat hypochromic. Normocytic.
,, ,, scurvy.	Somewhat hypochromic. Normocytic.
B.—By action of deleterious substances—	
Microbic "toxins"; syphilis, tuberculosis, sepsis, &c.	Hypochromic to varying degree. Normocytic.
Chemical poisons—e.g., lead nephritis.	
C.—From crowding out of the red cell forming marrow by cells of other types—	
The leukæmias.	
Lymphadenoma.	
The reticulo-endothelioses.	
Malignant invasion of the bone-marrow.	
D.—Exhaustion due to small continued hæmorrhages.	
E.—Failure of unknown causation—	
Aplastic anæmia.	Normochromic. Normocytic.
Splenic anæmia.	

A further morphological classification may be made on the basis of the hæmoglobin load carried by the red cells.

When this load is high the colour-index, which is the arithmetical expression of this load, is also high. Anæmias of this type are described as hyperchromic; pernicious anæmia and the anæmia of sprue serve as examples. When the hæmoglobin load of the red cells is low the

* Expanded from an address delivered before the Eastbourne Medical Society on April 24th, 1934.

colour-index is also low and the anæmia is described as hypochromic; the classical example of this type of anæmia is chlorosis, in which the colour-index may fall to 0·25.

It is unusual in states of anæmia to find no disturbance of the hæmoglobin load of the red cells; when this does occur the anæmia is described as normochromic; the normochromic anæmias tend to grade insensibly into the hypochromic.

There are, however, few cases of anæmia in which examination of the blood picture alone unaided by clinical observations will carry the diagnosis very far or help much in the treatment. For the initiation of effective treatment ætiological considerations are necessary.

Ætiological Classification

From the ætiological standpoint the anæmias fall into two great classes:—

(1) Those due to loss or destruction of red cells, and (2) those due to interference with the formation of red cells (hæmopoiesis).

The vast majority of the cases of anæmia met with in practice fall into the second class. In subdividing these in the accompanying Table free use has been made of the classification suggested by Dr. Janet Vaughan.[1]

Anæmias due to Loss or Destruction of Red Cells

BY MASSIVE HÆMORRHAGE

This in ordinary civil practice is not of great importance. The great danger from massive blood loss, whether due to trauma or to some morbid condition such as peptic ulcer, is not the resulting anæmia but the catastrophic fall of blood pressure consequent on sudden depletion of the circulating blood and the accompanying "shock." This initial shock may be profound and dangerous, but the actual anæmia associated with it is not necessarily great. The patient in a state of shock after a severe hæmorrhage appears so pale and bloodless that it is difficult to believe that the condition is not entirely due to anæmia. In such cases, however, examination of the blood often shows a hæmoglobin percentage of not less than 35 per cent. or a red cell count not under 2,000,000 per c.mm., a degree of anæmia which when of slow onset is perfectly compatible with a comfortable life of somewhat restricted activity.

Since the transfusion of blood has become simple and reasonably safe it has become customary to proceed to it as soon as possible in all cases of this sort. Usually the results are very good; within a few minutes an apparently moribund patient may be restored to a state of reasonable well-being; the blood pressure rises, the colour returns, and all signs of shock pass off. Examination of the blood in such cases, however, will show after the transfusion only a very slight increase in the hæmoglobin percentage and number of red cells per c.mm. The main benefit appears to be derived not from the substitution of new red cells for those lost, but from the increase of the blood pressure. For this purpose blood is not necessary; a colloid solution such as gum saline serves equally well.

It is true that the infusion of blood serves as a powerful stimulus to hæmopoiesis, but in cases of hæmorrhage in previously healthy individuals this stimulus is not necessary; the hæmorrhage itself is a powerful stimulus to the same end; a healthy hæmopoietic system after extensive hæmorrhage will restore the blood to normal and something better in from two to four weeks.

It is not uncommon to see unsatisfactory blood regeneration after morbid bleeding, particularly from peptic ulcer. Usually this means that the bleeding has not ceased; in other cases it is due to failure of the restricted diet to supply the iron and other substances necessary for normal hæmopoiesis. Man cannot live by milk alone, not even the man with a duodenal ulcer.

BY DESTRUCTION OF THE RED CELLS

Destruction of the red cells within the circulation can be produced experimentally by various chemical poisons; clinically it is seen in malaria and in two congenital conditions closely allied to each other—familial acholuric jaundice and sickle-celled anæmia; the latter occurs only in negroes and has so far not been reported in this country; the former is relatively common. The blood destruction in familial hæmolytic jaundice depends on the fact that the red cells are congenitally abnormal, not strictly microcytic, though that is the readiest way of describing them; they are normal in volume but small in diameter, giving a distinctly more dense appearance than normal cells under a microscope. Their resistance to lowered osmotic tension is less than normal; being abnormal they are subject to excessive destruction by the reticulo-endothelial system with resulting anæmia and bilirubinæmia. The excessive activity of the reticulo-endothelial system results in hyperplasia, especially noticeable in its largest collection, the spleen, which may attain immense proportions. Diagnosis is established by the demonstration of the increased fragility of the red cells in the presence of hypertonic saline and by the constant high reticulocyte count; as is well known the results of splenectomy are excellent and lasting.

Anæmias due to Interference with Hæmopoiesis

FROM DEFICIENCY OF FACTORS NECESSARY FOR HÆMOPOIESIS

Little is known of the intimate chemistry of hæmopoiesis, but it is evident that it cannot proceed satisfactorily in the absence of certain factors. Such are certain minerals, as for instance, iron, copper, and manganese, vitamins, and substances elaborated within the body such as thyroxine and the antianæmic factor of pernicious anæmia.

THE DIAGNOSIS OF PERNICIOUS ANÆMIA

Probably no condition is so frequently diagnosed when absent and so frequently missed when present as pernicious anæmia. Up to five years ago, before effective treatment had come into existence, it was a matter of no great moment if it remained undiagnosed; now this is not so. Thanks to the work of G. R. Minot, W. B. Castle, and others, a flood of light has been thrown upon the ætiology of this hitherto dreaded malady, a specific treatment has been made available, and "pernicious" anæmia now ranks among the most easily controlled of all medical disorders.

Accurate diagnosis has thus become of the first importance and once a diagnosis has been made vigorous and intensive treatment is essential. Half measures may result in loss of life; at best they merely serve to allow of the development of the nervous complications, the incidence of which, now that death can readily be warded off, is increasing. Failure to establish an accurate diagnosis may lead to the application of an entirely wrong therapy. It cannot be too strongly insisted that the action of the antianæmic principle is specific for pernicious anæmia and one or two other types only, these being rarely met with in this country; its application to other forms of anæmia can only lead to the loss of valuable time and the waste of material.

[1] THE LANCET, 1933, ii., 63.

The diagnosis of pernicious anæmia is not altogether easy; on clinical grounds alone certain diagnosis is impossible. There has long been current a superstition that any competent hæmatologist should be able to make the diagnosis from the examination of a stained film alone. Attempts to live up to this belief have been responsible for certain of the "cases of pernicious anæmia irresponsive to liver." It may be possible to make a guess at the diagnosis from the simple observation of a stained film of the blood but certainty is not possible. Blood from anæmia of many types may show the anisocytosis and poikilocytosis vulgarly supposed to be characteristic of pernicious anæmia and, again, the blood from a case of pernicious anæmia may fail to show these phenomena. It is true that in untreated cases the mean diameter of the red cells is greater than in health and that the variation about the mean of their size shows characteristic departures from the normal. There are, however, certain other conditions such as idiopathic steatorrhœa and sprue showing very similar peculiarities.

Fortunately, although a certain diagnosis of pernicious anæmia cannot be established on anyone laboratory procedure, it can be arrived at by the combination of a number, no one of which is particularly laborious or difficult. For the establishment of a firm diagnosis the following procedures must be employed: enumeration of the red cells; estimation of hæmoglobin percentage; calculation of the colour-index; examination of stained film of blood; and estimation of mean diameter of red cells. The following procedures are of great assistance and should be employed whenever possible: fractional test-meal and van den Bergh reaction of serum and estimation of bilirubin percentage. None of these procedures are "tests" in the sense in which the word is used by the uninstructed; each one of them is calculated to reveal one or more of the aspects as now understood of the characteristic pathology of the disease.

THE ANTIANÆMIC FACTOR

Pernicious anæmia so far as at present understood depends upon absence or deficiency of the antianæmic factor normally resident in vertebrate liver The formation of this antianæmic factor depends upon the interaction in the course of normal digestion of the intrinsic and extrinsic factors of Castle, the former present in the gastric secretion and the latter in certain foodstuffs.

In the vast majority of cases the development of pernicious anæmia appears to depend upon the absence from the stomach of the intrinsic factor; demonstration of this deficiency would at once give the diagnosis. Such demonstration is possible by feeding half a pound of beef steak to the subject under investigation, allowing it to digest and then withdrawing the gastric contents and feeding them to a patient in the remission stage of pernicious anæmia. The presence of the intrinsic factor in the gastric juice of the subject under investigation is revealed by a reticulocyte shower in the blood of the known sufferer from pernicious anæmia; its absence by the failure of such a shower to appear. Although much research work has been done along these lines, both in this country and in America, this procedure obviously constitutes a somewhat cumbrous method of diagnosis. Fortunately it is unnecessary.

Fractional test-meal.—Although no simple test for the presence or absence of the intrinsic factor exists, it is a fact, our knowledge of which we owe largely to the work of A. F. Hurst, that it is very rarely absent if free hydrochloric acid be present or can be made to appear in the gastric juice. A few exceptions have been reported, but for all practical purposes it can be accepted that the patient showing free hydrochloric acid in the gastric juice is not suffering from pernicious anæmia; the converse that all patients showing achlorhydria are necessarily or even probably suffering from pernicious anæmia is very far indeed from being true. In the diagnosis of pernicious anæmia, however, the examination of the gastric juice must play an important though negative part. The demonstration of free HCl therein may be taken as practically conclusive evidence that the intrinsic factor is also present and that some cause other than its absence must be sought for the anæmia.

The intrinsic factor of Castle resides in the gastric juices. The extrinsic factor is known to reside among other things in beef steak and in Marmite, but its nature is entirely unknown. The interaction in the course of normal digestion of the extrinsic and intrinsic factors gives rise to the antianæmic factor.

The total antianæmic factor is essential for normal hæmopoiesis; if it be deficient, pernicious anæmia will develop and the cure of the disease depends upon the substitution of the lacking factor.

The function of the antianæmic factor so far as present knowledge goes is to bring about the maturation of the red cells. In its absence the red cells throughout the hæmopoietic system do not come to complete maturity; being immature they show no anxiety to leave the safe shelter of their birthplace in the bone-marrow and when they do find their way into the busy world of the circulation they rapidly come to grief.

Evidence of this rapid blood destruction is provided by the presence of *bilirubin* in the serum in values above those ever found normally. This excess of bilirubin is demonstrated by the *van den Bergh reaction* and as it is due to bilirubin which has not passed through the liver the reaction is always of the indirect type; usually the reaction is strong, sometimes very strong indeed. The absence of a positive indirect van den Bergh reaction is important evidence against a diagnosis of pernicious anæmia.

Failure of the red cells to attain maturity results in the morphological peculiarities already referred to. As observed in *stained films* of the blood the red cells are usually variable in size and shape—in hæmatological jargon they show anisocytosis and poikilocytosis, and they are on the average larger than normal. Either the Price-Jones curve or one of the modifications of the diffraction method introduced by A. Pijper serve to demonstrate this peculiarity.

Mean diameter of cells.—The diffraction (halometric) method is now well known. In principle it consists in using an unstained film of the blood as a diffraction grating; observation of a source of light through such a film shows a series of diffraction rings the size of which varies inversely with the average size of the red cells; various techniques have been devised for this observation; one of the simplest is that described by D. Merlyn Price in THE LANCET (1929, ii., 275), another is the Eve "halometer." This method has its uses; failing a Price-Jones curve it constitutes a valuable aid to the establishment of a diagnosis of pernicious anæmia; it has, however, technical drawbacks, especially in cases in which the anæmia is profound, and in itself can never establish a diagnosis of anything.

The *variability in the size of* the red cells may often be obvious in stained films of the blood; its presence may, however, fail to show itself by mere observation unsupported by actual mensuration. To obtain a graphic representation of this variability it is necessary to plot the Price-Jones curve; in certain very rare cases this procedure may constitute the ultimate court of appeal as to whether any given case be one of pernicious anæmia or not.

The actual *number of red cells* per c.mm. is in itself of little importance in the diagnosis of pernicious

anæmia; in cases requiring treatment they may range anywhere from 4,000,000 to 500,000 per c.mm. Without knowledge of the red cell count it is, however, impossible to ascertain the colour or volume index, and the calculation of one of these at least is an essential step in diagnosis.

Since the red cells are on the average larger than normal, each cell as a rule carries a higher load of *hæmoglobin* than the normal cell. The colour-index, obtained by dividing the hæmoglobin percentage by the percentage of normal of the number of red cells per c.mm. is therefore greater than normal; usually although not always it is above unity. For the same reason the volume index or the expression of the bulk of the packed red cells against the number per c.mm. is also greater than normal and always above unity. In the diagnosis of pernicious anæmia the estimation of the *colour and volume indices* are actually used as indirect means—the former more indirect than the latter—of demonstrating increase in the average size of the red cells.

Finally *the response to treatment* with the anti-anæmic principle constitutes perhaps the surest means of the diagnosis of pernicious anæmia. As laid down earlier in this article it may now be accepted that the ultimate ætiological factor in the causation of the disease is deficiency of the antianæmic factor. This deficiency gives rise to the sequence of disturbances of hæmopoiesis outlined above; hæmopoiesis can be restored to normal by the administration of the anti-anæmic factor either orally or parenterally. Exhibition of the factor in sufficient dosage in a case of pernicious anæmia is at once followed by evidence of the restoration of normal blood formation. The earliest recognisable phenomenon is the liberation into the blood stream of numbers of the immature red cells which have been prolonging their residence in the bone-marrow; these cells appear in the blood as the "reticulocytes" and the occurrence of a reticulocyte shower in the blood after the initiation of therapy with the antianæmic principle serves as proof both of effective treatment and correct diagnosis. With effective parenteral therapy the beginnings of such a shower may be evident on the second day after the commencement of treatment and the response at its height within five days; with oral treatment the response may take two or three days longer to appear.

CONCLUSION

To commence with the statement that pernicious anæmia is an entity depending upon deficiency or absence of the antianæmic principle of liver and to conclude with the statement that ultimate diagnosis must depend upon the response to treatment with this factor may appear to constitute reasoning "in circulando." Actually the latter statement is implicit in the former. Fortunately it is possible in the vast majority of cases by means of the combination of investigations mentioned above to ascertain beforehand whether any given case is or is not one of pernicious anæmia without putting the patient to the trouble and expense of a course of treatment of doubtful value.

The blood picture of *sprue* may be indistinguishable from that of pernicious anæmia, and it responds well to treatment with the antianæmic factor. The intrinsic factor may or may not be present in the stomach, and it is evident that the anæmia depends not so much upon its absence of as upon failure in absorption of the antianæmic factor from the bowel. For this reason the anæmia of sprue is better treated by the parenteral injection of liver extracts than by their oral administration. The failure of absorption from the bowel does not affect the antianæmic factor only; there is also deficient absorption of carbohydrates and of calcium among other substances, and the administration of liver does not therefore constitute the whole treatment of a case of sprue.

To some extent, and in certain cases only, the anæmia of *idiopathic steatorrhœa* falls in the same category as that of sprue. It appears to depend upon failure in the absorption of constituents essential for hæmopoiesis from the bowel; in particular the absorption of iron is affected, and massive iron dosage is necessary for the improvement of the blood picture.

ANÆMIAS DUE TO MINERAL DEFICIENCY

Of the anæmias due to mineral deficiency the principal examples are "nutritional" anæmia, the microcytic anæmia often occurring in middle age, and chlorosis. All these are associated with deficiency of hæmoglobin; they, therefore, are characterised by a low colour-index and belong to the hypochromic group.

Idiopathic hypochromic anæmia (Witts) is intimately associated with iron deficiency and responds readily to iron therapy. Patients suffering from this condition almost invariably show complete absence or marked deficiency of the gastric hydrochloric acid, and it is probable that in a good many cases the iron deficiency arises from failure to absorb the iron of the food, for American work has shown that iron is more readily assimilated when acid is present in the stomach. The chronic gastritis resultant on the gastric anacidity gives rise to symptoms which are usually treated with alkalis and slops instead of with acid and a high protein diet, thus consolidating the vicious circle.

The blood in this type of anæmia does not as a rule show a great deficiency in red cells; usually they do not fall below 2,500,000 per c.cm., but the deficiency of hæmoglobin may be profound; it may fall as low as 25 per cent., with a colour-index in the neighbourhood of 0·4. In untreated cases many of the red cells on suitable staining with eosin, as recommended by C. Price-Jones, appear much paler than normal; this failure of the eosin to "take" on these cells apparently indicates a deficiency of hæmoglobin. With improvement on iron therapy the proportion of the abnormally staining red cells decreases; estimation of the proportion of the hypochromic cells forms a useful method of controlling the response to treatment in these cases.

Various workers have shown that iron loses a part or the whole of its effect in the treatment of experimentally produced anæmia if given without copper and the same to some extent applies to manganese. Therapeutically it is difficult to give iron without at the same time giving one or both of these elements since, as shown by J. H. Sheldon and H. Ramage,[1] most pharmaceutical preparations of iron contain one or both; further, both copper and manganese are very widely spread in the soil and it is almost impossible to avoid taking them on an ordinary mixed diet.

The blood picture of *chlorosis* is very similar to that of idiopathic hypochromic anæmia. It is unusual to find any marked diminution in the red cells; the deficiency of the hæmoglobin is the main factor; even in the presence of a red cell count of 4,000,000 per c.mm. or more this may fall to the neighbourhood of 30 per cent. giving a colour-index between 0·3 and 0·4. Typically the condition occurs in young unmarried females; it is sometimes stated that it has ceased to exist, but though it is now much rarer

[1] Quart. Jour. Med., 1932, i., new series, 135.

than it was 20 years ago it is still to be met with. The ætiology of chlorosis is unknown, but the fact that it responds well to iron therapy (which, however, must be combined with measures of general hygiene) indicates that it depends to some extent at any rate on deficient iron absorption.

"*Nutritional*" *anæmia* is met with mainly in children and is often associated with overlong persistence on a milk diet; it is, however, not infrequently encountered in adults; in some cases the dietetic fault may be due to poverty, in fact to semi-starvation; such cases are met with from time to time but in my experience not so frequently as might be expected in the present period of economic stress. More frequently adult sufferers from this type of anæmia are found on inquiry to have been living from choice on an abnormal diet, sometimes through having either misunderstood or too rigorously applied medical instructions, sometimes apparently out of sheer perversity. In nutritional anæmia the iron deficiency is an important factor but low protein content, improper balancing of the various constituents, and vitamin deficiency all play a part. Such anæmia cannot be cured by iron alone; a full and properly balanced diet is also necessary.

The anæmia so frequently met with in cases of *cancer* especially of the stomach belongs to this class in so far as it is not due to hæmorrhage from ulcerated surfaces. It is often stated that the anæmia of gastric carcinoma may simulate pernicious anæmia so closely as to be almost indistinguishable; there appears to be very little evidence for this. When metastases occur in the bone-marrow a profound anæmia may result which in certain cases may be associated with the white cell picture characteristic of pernicious anæmia, but the red cells never take on the peculiarities typical of this latter condition. The anæmia of cancer with the cachexia which is so distressing a feature of many cases has been attributed, without much justification, to some mysterious toxin emanating from the new growth. Ample cause for the anæmia and cachexia usually exists in the disturbance of nutrition due to the growth itself, ulceration, depression of mind, and other circumstances. The anæmia of gastric carcinoma has been seen to respond well to iron therapy combined with measures of general hygiene in spite of the persistence of the growth.

One of the *internal secretions* (unless the antianæmic or pernicious anæmia factor be included among these) that is known most definitely to have an effect on hæmopoiesis is thyroxine. Myxœdema is always associated with some degree of anæmia; in this case again the blood picture shows nothing characteristic and the diagnosis cannot be established from its examination alone. A degree of hypothyroidism short of that requisite to give rise to well-marked symptoms of myxœdema may be associated with anæmia of a fairly high degree. Such an anæmia will not improve on iron alone; it calls in addition for thyroxine substitution therapy. It is always well to bear this possibility in mind in cases of anæmia occurring in the middle aged, both male and female.

Of the *anæmias due to vitamin deficiency* the best defined is that of *scurvy*; deficiency of vitamin B probably bears a part in "nutritional" anæmia and it is evident that the B complex plays an important though at present ill-defined part in hæmopoiesis.

ANÆMIA DUE TO ACTION OF DELETERIOUS SUBSTANCES

Under this heading fall many of the cases of anæmia seen in hospital practice. It comprises the anæmias due to sepsis, whether acute, subacute, or chronic and including in the term such conditions as tuberculosis and syphilis; also the anæmia of chronic poisoning such as lead and that of nephritis. The red cells may be hypochromic but otherwise show no special peculiarities; they remain of normal size and the colour-index though lowered is usually not grossly so. The white cells may show changes both in numbers, distribution, and morphology, depending upon the nature of the condition giving rise to the anæmia, but the discussion of their peculiarities does not enter into the scope of the present article. Except in the case of *B. welchii*, infection with hæmolytic micro-organisms does not give rise to actual destruction of the red cells and is therefore not associated with bilirubinæmia. The anæmia is due to failure in hæmopoiesis brought about by poisoning of the bone-marrow; successful treatment depends upon removal of the source of the poison.

ANÆMIA DUE TO CROWDING OUT OF THE HÆMOPOIETIC BONE-MARROW

To this class belong the anæmias associated with the leukæmias, with lymphadenoma, and the various reticulo-endotheliosses such as Gaucher's and Niemann-Pick disease. The anæmia in all these conditions appears to depend upon the replacement of the red cell forming marrow by the morbid cells. The red cells themselves remain unaltered until the last stages of the disease when the overworked remnants of the marrow may turn immature cells into the circulation.

ANÆMIA FROM EXHAUSTION OF THE BONE-MARROW DUE TO SMALL CONTINUED HÆMORRHAGES

A single massive blood loss acts as a stimulus to the hæmopoietic system; it is followed by a reticulocyte crisis and a rise of the blood count in the course of a comparatively short time to a level higher than that before the hæmorrhage. In fact, as has been pointed out by various authors, its effect is very similar to that of a transfusion. It was no doubt clinical experience of this that established the popularity of blood-letting in the past. The effects of continued small losses of blood are entirely different. No stimulus is afforded by such loss and in course of time, whether as a result of anoxæmia from the persistent anæmia or from some other cause, the hæmopoietic system becomes increasingly sluggish.

Anæmia of this type is probably seen more frequently as a result of bleeding from hæmorrhoids than from any other cause; such bleeding may persist for years without drawing much attention to itself. It may occur as a result of chronic oozing from a peptic ulcer, but in such cases other symptoms usually draw attention to the trouble. It may occur in association with menorrhagia and metrorrhagia; in cases of this sort, however, it is always well to bear in mind that the uterine bleeding may be the result of anæmia of the microcytic type. In certain cases in which the uterus is free from organic change an intensive course of iron will clear up such hæmorrhage.

Anæmia of this type constitutes a strong indication for the transfusion of blood. The replacement of the deficient blood constitutes only a small part of the benefit drived. The infusion of the blood acts as a powerful stimulant to the hæmopoietic system and sets red cell formation going again. For this reason in this condition a number of small transfusions at intervals of a few days are greatly to be preferred to a single large one. Iron appears to be of use in assisting blood regeneration in this type of anæmia and there is some evidence that liver also helps, though whether in virtue of the active principle

contained therein or simply by reason of its value as a source of high grade protein remains doubtful; in view of this doubt, if liver be used at all, whole liver is preferable to commercial extracts in the treatment of this type of anæmia.

FAILURES OF UNKNOWN CAUSATION

The anæmia of *aplastic anæmia* differs from that of every other type except that due to massive hæmorrhage in that it is both normochromic and normocytic. The history usually serves to clinch the differential diagnosis, but a complicating factor may be introduced by the tendency to bleed. In aplastic anæmia purpura is the rule, and the "brassard test" is always positive. The ætiology of the condition is unknown; the patient may be kept going for some time by means of repeated transfusions, but recovery has never been reported.

The diagnosis of *splenic anæmia* rests upon the demonstration of an enlarged spleen together with an anæmia for which no cause can be found. Hæmorrhages from enlarged œsophageal varices and elsewhere are common and may prove fatal; in the later stages the liver becomes cirrhosed, and death results from cachexia. Good results have been claimed from splenectomy in the early stages, but the unanimity of opinion as to the beneficial results of splenectomy in acholuric familial jaundice by no means exists in the case of splenic anæmia. Evidence has lately been produced [3] that the primary lesion in this condition is hepatic; should this prove to be the case it would serve to explain the varying results after splenectomy.

MEDICINE AND THE LAW

Medical Privilege Upheld

A DOCTOR'S protest against the disclosure of a patient's confidence has been judicially upheld in novel and important circumstances. Mr. A., a tuberculous patient, under periodical supervision at a London tuberculosis dispensary, was employed as a telephone operator by a City firm and underwent a period of sanatorium treatment in 1929. Four years later, Mr. B., his deputy telephone operator, developed pulmonary tuberculosis and sued the firm for compensation under the Workmen's Compensation Act, claiming that his disease was the result of using the telephone instrument used by Mr. A. The case was heard on Oct. 1st at the Mayor's and City of London Court. The tuberculosis officer at the dispensary attended by Mr. A. received a subpœna from Mr. B. to come to the court and produce the records of the dispensary showing his patient's condition and treatment there. The officer made a protest both on the general ground that the evidence required of him was obtained by him in confidence as a medical practitioner, and on the special ground of a statutory obligation to secrecy. Article 10 of the Public Health (Tuberculosis) Regulations of 1930 directs that "every notification and every document relating to a person notified under these regulations shall be regarded by the medical officer of health and by every person who has access thereto as confidential." Under Section 1 (3) of the Public Health Act, 1896, as the witness reminded the court, refusal to obey the Regulations would expose him to a penalty of £100. The judge upheld the protest, and the tuberculosis officer was absolved from giving evidence. The incident forms a valuable precedent.

It is hardly necessary to add that regulations made under an Act of Parliament have just as much force as the Act itself unless a competent court holds that they are ultra vires. This particular direction as to non-disclosure was not enacted in the earlier Tuberculosis Regulations of 1908 and 1911, but was introduced into those of 1916, a similar direction being embodied soon afterwards in the Venereal Diseases Regulations of that year. Parliament has enjoined the principle of secrecy in a wide variety of circumstances, such as income-tax and census information, telegrams, and the adopted children register, though in these special cases the protection is not absolute and official disclosure (as in criminal proceedings for fraud) is not unknown. Such analogies, however, lack the all-important element of the confidential relationship which exists between doctor and patient. This element is present in the regulations under the Public Health Act. Inasmuch as compulsory notification of disease is in itself a statutory breach of professional confidence, the statutory direction of secrecy is the more necessary.

The Manchester Hospitals Inquiry

The Ministry of Health concluded last week its inquiry into the circumstances of the death of Mrs. Taylor on May 14th at the Crumpsall Hospital, Manchester, whither she had been removed from St. Mary's Hospital, Whitworth-street, where her baby had just been born. An outline of the facts, showing how the patient came to be transferred from St. Mary's because the hospital was already full, was given in THE LANCET (July 21st, p. 158) with a summary of the report of a committee of investigation. A largely attended meeting in the Free Trade Hall in Manchester (see THE LANCET, August 4th, p. 276) afterwards protested against the insufficiency of the committee's report (which had exonerated the two hospitals) and demanded a public inquiry. On request of the Manchester Corporation, the Minister of Health set up a tribunal (consisting of Dr. Isabella Cameron and Mr. H. J. Comyns, barrister-at-law) for this purpose and four days were occupied in hearing evidence and speeches in the Manchester Town Hall. It is not clear whether the tribunal's report, when made, will be published as it stands or whether the Ministry will merely communicate to the Manchester Corporation the official conclusions and recommendations. While the case is still sub judice, comment must be withheld but it may be convenient to indicate the issues raised.

Mr. Lever, who appeared on behalf of the deceased's family, opened various matters of complaint. These may be summarised as follows: (1) that, when Mrs. Taylor with her mother reached St. Mary's Hospital, there was delay before the doctor saw her; (2) that, when the doctor came, he sent her mother out of the room, using the word "scram" (get out); (3) that Mrs. Taylor, after the birth of her baby, was put into the ambulance to be taken to the Crumpsall Hospital, and waited in the ambulance from 7 P.M. to 7.25 P.M., no nurse being with her; (4) that she was much shaken during the four-mile journey in the ambulance; (5) that, on arrival at the Crumpsall Hospital, 20 minutes were occupied in taking particulars of her case twice over before she was put to bed; (6) that she was not placed in the ward till 8 P.M.; (7) that the doctor did not see her till 9.15 P.M.; and (8) that there was delay in acquainting her relatives with her death. The legal

[3] McMichael, J.: Jour. Path. and Bact., September, 1934, p. 480.

representatives of the two hospitals afterwards submitted that Mr. Lever's witnesses had not substantiated all the matters which he had opened; they protested too at the admission of evidence about previous cases of similar complaint in 1926 and 1933. The allegations which had specially stirred public opinion in Manchester may be gathered from the speech of Miss Jeffrey who represented the Manchester and Salford Women Citizen's Association. She asked for an explanation first why, when the nurse had to call the mother because the baby was coming so quickly, the nurse then left the room and the baby was born without any nurse in attendance; the answer seems to have been that the nurse left the room to use the telephone (just outside the door) to summon the doctor. Miss Jeffrey further asked why Mrs. Taylor was left in the ambulance with her mother from 7 to 7.25 P.M. without any medical observation, why she was not given any nourishment between the birth of the baby at 6.20 P.M. and the time she reached the Crumpsall ward at 8 P.M., why the patient's request for water (overheard by a fellow-patient) was refused, thirst being a sign of hæmorrhage, why particulars were taken twice at Crumpsall, and why half an hour elapsed before this serious case was put to bed there. The professional witnesses called included Dr. J. S. Fairbairn, Prof. Harold Whitehouse of Birmingham, Prof. A. Leyland Robinson of Liverpool, and the following members of the staff of St. Mary's Hospital, Manchester: Dr. R. H. Nattrass, resident obstetric surgeon; Dr. D. G. Brownlie, house surgeon; and Dr. Gerrard, the registrar. Their cross-examination was directed particularly to the effect of moving a patient so soon after childbirth, the need of rest, quiet, nourishment, and medical supervision, the transfer of antenatal records when a patient is transferred, and the undesirability of over-booking beds for maternity cases. Reference was made to Sir George Newman's recommendation that a margin of accommodation should be left in maternity hospitals for emergencies. Mr. Lever had apparently pressed the fact that there was one vacant bed in St. Mary's when Mrs. Taylor was told that there was no room for her. Dr. Nattrass replied that the empty bed was in the septic ward, and Dr. I. D. Cameron intervened to explain that it was definitely against obstetric practice to put an ordinary case into a septic ward.

The inquiry proceeded in an atmosphere indicative of strong feeling. The husband and mother of the deceased frequently interrupted the speeches, the mother even mounting the platform where the tribunal sat. Applause and derision punctuated the hearing and there were asperities between the principal advocates. In addition to the parties already mentioned, representatives of the following bodies took part in, or were present at, the inquiry: the Women's Advisory Council of the Manchester Labour Party, the Women's Coöperative Guild, the Manchester and Salford Trades Council, and the Maternal Mortality Committee of London. It may be hoped that local opinion will be satisfied that there has now been an adequate investigation. Two interesting letters were published in the *Manchester Guardian* just before the inquiry. In one Lady Simon, who bears a name honoured in the civic history of Manchester, suggested the pooling of hospital beds even if additional staff and expense would be required. She also observed that the Local Government Act of 1929 was meant to ensure coördination of the voluntary hospitals with those taken over from the guardians, but that hitherto Manchester had taken no such step. In the other letter Mrs. Alice Titt deplored the tendency to regard pregnancy as a complaint instead of a natural function, and regretted that women should be forced unwillingly into hospitals when local authorities had power to pay midwives in necessitous cases to attend the mother in her own home. She quoted opinions to the effect that the study of maternal mortality has unexpectedly shown that it is unnecessary to provide clean homes in order to obtain safe confinements in normal cases, and that the increasing preference of the hospital as a place of delivery seems not only not to have bettered the results, but actually to have made them worse. The letter suggested that modern midwifery has been taken out of the hands of experienced and efficient attendants whom the mother can choose for herself, and that young mothers are induced to go to hospitals under economic pressure and without conspicuous advantage.

Coroner on Cancer Healer

At an inquest at Westminster last week on Miss Alice Bishop, aged 62, the coroner commented on the serious responsibility undertaken by Mr. D. Rees Evans, a professed healer of cancer. "He holds himself as able to cure a disease which has baffled the whole world: if he has a secret remedy which would cure cancer, ought he not to hand it over to the numerous sufferers?" It appeared that Mr. Rees Evans had treated Miss Bishop from April 30th until Sept. 15th. Afterwards, on the advice of a qualified doctor, she was removed to a nursing-home where she died on Sept. 21st from syncope from toxic absorption due to ulcerated carcinoma, the carcinoma being quite inoperable.

Mr. Evans, who volunteered to give evidence, said he was 41 years old. He had no medical training and no knowledge of pathology; he had not been taught anatomy, medicine, or surgery, and had never used a microscope; he had got his knowledge from his own experience. He had first met Miss Bishop at a lecture he gave on cancer, when six of his cured patients were present. When she came to him she was suffering from advanced cancer of the right breast. His treatment was to apply a paint externally over the diseased area with a small brush and then to cover it with oiled silk or gauze, afterwards putting on cotton-wool held in place by adhesive plaster. The paint was a herbal preparation which had been in use for 30 years; it was neither a caustic nor an acid, nor did it contain turpentine; it was not an ordinary antiseptic but merely herbs. He was willing to tell the coroner personally the names of the herbs, but he declined to state them in public. Pressed by Mr. Terrell, who appeared on behalf of an executor of the deceased, he said he had never allowed anyone else to test the preparation. He denied that in the action of Burrell *v.* Evans in 1930 the liquid was analysed and found to be Venice turpentine. He declined to say how much the liquid cost. No newspaper, he said, would publish his formula. He had repeatedly asked for his cures to be examined. It would take from a year to 18 months for anyone to learn the technique of his treatment under his supervision; he himself had been brought up to it. It did not cause intense pain to patients. He had appeared before the Ministry of Health Cancer Committee in 1923 and had sent them a list of 30 persons whom he had cured and who were still alive. He did not submit the liquid to the Committee. He was not aware, he said, that the Committee unanimously recommended that no further steps be taken to investigate his claim. He had charged the deceased seven guineas a week;

he had three other patients at the same time paying him at the same rate. He denied that he had promised to cure Miss Bishop in three months; he was not aware that Mrs. Burrell had given evidence in the 1930 litigation that he had made her the same promise. He denied that he sent away his patients from his house when they were about to die.

On behalf of Mr. Rees Evans evidence was given by a friend of Miss Bishop who said that the deceased was entirely satisfied with his treatment; Miss Bishop had a dread of the surgeon's knife; when she died, she wanted to go out whole. Mrs. Blanche Mathews, of Douglas-road, Surbiton, said that Mr. Evans cured her of cancer of the breast after she had had three courses of radium treatment at Guy's Hospital; she would not object to a medical examination. In summing up to the jury, Mr. Ingleby Oddie said there was no question about Mr. Evans's good faith; to return a verdict of manslaughter the jury would have to be satisfied that his treatment had either caused death or accelerated death; he himself saw nothing in the evidence to justify this. The jury brought in a verdict of manslaughter. The coroner pointed out again that there was no evidence that the treatment shortened life; the pain Miss Bishop had suffered did not necessarily shorten life. The jury retired and returned a verdict that death was due to natural causes accelerated by lack of treatment, with a rider condemning the interference and negligence of Rees Evans.

Herbalist and Gastric Ulcer

Sir Samuel Brighouse, coroner for the Ormskirk district of Lancashire, concluded an inquest, opened on Sept. 7th, upon the death of Mrs. Pierpoint, of Earlestown. The death had been reported to him by Mr. C. C. Abbott, of Railway-road, Leigh, who, according to the coroner, designated himself on his notepaper as "M.I.B.Th." and as a physio-medical practitioner. Mr. Abbott wrote that he had treated the deceased for 12 months, had seen her regularly for the last few weeks, and last saw her alive an hour before she died, and that death was due to natural causes. Had a similar note come even from a registered and recognised medical practitioner, said the coroner, the registrar would have been unable to register the death. The inquest was adjourned for a post-mortem examination. At the resumption the husband of Mrs. Pierpoint said she had complained of illness on August 15th; Mr. Abbott attended her next day and said an ulcer had burst; on the following Monday he told the husband that the case was hopeless. A post-mortem examination was conducted by Prof. MacFall, of Liverpool University, who stated at the inquest that he found no evidence whatever of any ulcer in the stomach. Death was due to asphyxia caused by fluid; if the abdomen had been tapped there was no reason why she should not have recovered. According to the husband, Mr. Abbott had at no time suggested tapping. Asked by the coroner if he thought the failure to tap amounted to negligence, Prof. MacFall replied that it was gross ignorance and gross negligence. "The woman was allowed to die just as if she had been throttled"; tapping would have saved her life. The coroner having explained the law to the jury, they returned a verdict that Mr. Abbott had sufficiently discharged his duty to the patient; they found that death was due to asphyxia in accordance with the medical evidence. The verdict was greeted with applause from the back of the court.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

GOVERNMENT HOUSING POLICY

THE Secretary of State for Scotland has intimated his decision that in the new housing campaign the same central authority shall remain and the local authorities will be asked to continue their coöperation. This partnership has already produced 135,000 houses in Scotland since the war. But the task is scarcely half done, and to produce as many houses in the next five years as in the last 15 the machinery must be speeded up threefold. Sir Godfrey Collins means to discourage the building of any more two-roomed houses, in accordance with the original recommendation of the Scottish Royal Commission. He has provided for advice from architects and continental experience will be utilised in the new development.

Mr. John Highton, secretary of the Department of Health, has reminded the Scottish Association of Insurance Committees that in one division in Glasgow, according to the 1881 census, only 882 out of nearly 9000 families had more than two rooms fitted with windows, and the death-rate among them was 30 per 1000. The quadrangles which were so pleasant a feature of working-class houses on the Continent had nothing but an evil significance for Scotland. Instead of a cloistered shade of sweet-smelling flowers the interest at the centre was a privy midden. If only, he said, a series of quasi-independent efforts could be replaced by a single inter-related movement. Abroad he saw beautiful gardens and wooded grounds immediately opposite the house, not miles away in the public parks, and every house he visited was almost perfect in cleanliness. Cleanliness was not alien to Scottish temperament, but it was to a large extent alien in Scottish practice. That was, he thought, largely a matter of education.

PUBLIC MEDICAL SERVICE IN EDINBURGH

The operation of the Edinburgh public medical service scheme designed for the dependants of insured people and others of similar means in the city will begin on Oct. 1st. A family consisting of only one subscriber pays 4*d*. a week; two pay 8*d*.; three pay 10*d*.; and four or more pay 1*s*. A person actually suffering from illness at the time of application for admission as a subscriber must pay an emergency fee of 7*s*. 6*d*. which entitles him to immediate attention; normally, the new subscriber pays an entrance fee of 1*s*. The service offered, broadly speaking, corresponds to that given under National Health Insurance regulations. Benefit does not include attendance at confinements; vaccination; administration of a general anæsthetic; the signing of certificates and reports; medical attendance in respect of operations requiring general anæsthetics; bottles and other containers; examinations, court attendances under Common Law and Workmen's Compensation, Employers' Liability, and other statutes. The subscriber is permitted to change his medical attendant at any time on notifying the secretary of the service, and a member may similarly terminate his contract at any time.

Certain difficulties may be anticipated. For instance, what part are the hospitals, voluntary or official, to play in the scheme? One of the flaws of the National Health Insurance is that there is no provision whereby the voluntary hospitals derive benefit from treatment of insured patients. There

is nothing to prevent a hospital tariff being arranged on the same lines as a "practitioner" tariff, but the organisation of such a scheme would require much foresight and flexibility of administration.

CHIROPODY IN EDINBURGH

The autumn convention of the Incorporated Society of Chiropodists was recently held in Edinburgh, and was strongly supported by the local medical profession. Prof. John Fraser, in the course of an address, deprecated the modern tendency of the present day to use high heels. In his view the adoption of footwear with scarcely any heel would cause the disappearance of a large measure of foot disabilities. He also criticised the ordinary sock worn by children, which did harm because the point of the sock was not opposite the great toe and when it was close-fitting, and semi-elastic, it tended to pull the toe along the line of the sock. The properly designed knitted sock or stocking should be modelled on the exact outline of the natural foot; shoes should have blunt points and should be so designed that the inside edge was straight. Mr. Robert I. Stirling said that there were thousands to whom the members of the Incorporated Society of Chiropodists had brought comfort; he had no doubt they would help still more in the future. Dr. A. S. M. Macgregor spoke of the desirability of an alliance between chiropody and medicine and regretted the refusal of the British Medical Association to grant the recognition for which the society had applied. He thought he could say that most of those who had been prejudiced against its recognition had completely misunderstood the work which the society was doing, and felt quite certain that in a few years full recognition would be accorded to it. Dr. G. H. Percival gave a lecture on some dermatological conditions affecting the foot. He dealt with the commoner and some of the rarer skin conditions, illustrating his address with plaster casts. Chilblains on the back of the leg were becoming a more common complaint among women and were associated with the wearing of short dresses and silk stockings. Eczema of the foot could be caused either by infection or by irritation from chemical substances. The source of infections might be swimming baths and hotel bath floors. In working people especially, the presence of abrasions into which dust might be rubbed increased the chances of infection. Irritation due to chemicals was rare in the foot; its commonest cause was dye from shoe leather acting on skin abnormally sensitive to the dye dissolved by the sweat. Normal skin would resist the action of the dye in such low concentration.

EDINBURGH ROYAL INFIRMARY WAITING-LIST.—It is officially stated that on Sept. 1st the waiting-list at this hospital numbered 3281.

MANCHESTER BABIES' HOSPITAL.—The report for the year ended on March 31st shows that there is a decrease in true rickets where the children are under medical observation; where they are in charge of indifferent mothers and are not attending welfare centres rickets is still prevalent at certain seasons of the year. The hospital has many needs, among them an operating theatre, new X ray and sunlight departments, and a better laboratory, all of which have become inadequate. It has been found necessary to open the out-patients' department for six days a week instead of four, and Dr. Sylvia K. Guthrie has been appointed an hon. assistant physician to take one of the additional days. A new nurses' home to house 30 nurses and a block to contain the desired improvements is to be built at a cost of £10,000.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE

CENTENARY CELEBRATIONS

THE centenary of the foundation of the University of Durham College of Medicine in Newcastle-upon-Tyne was celebrated on Oct. 4th and 5th.

On Thursday afternoon the college was thrown open to the public, and exhibits showing the routine work of each department were on view. Various demonstrations were given of modern methods of teaching the basic medical sciences, and much ingenuity was shown in devising ways in which the visitors could themselves put in motion mechanism imitating natural physiological processes. For example, by pressure of a rubber bulb an ox's heart suspended in saline could be made to beat; the cavity was illuminated, and actual valve movements could be followed by an observer through eye-pieces. Visitors were also shown respiratory tests, and were encouraged to ascertain their own reaction time in response to such stimuli as red, green, and amber lights, and their steadiness of hand and eye as revealed by drawing metal rods through narrow grooves without deviation. The biochemical laboratory demonstrated some of the properties of colloids and the rôle of calcium in nutrition. Some skilful dissections of the brain and an interesting collection of surgical instruments were to be seen in the department of anatomy. The pathological laboratory showed a large collection of preserved specimens, some of which were of historic interest, and others provided a record of the development of methods of preparation and preservation. The department of biology gave a demonstration of the part played by insects in the spread of disease. A display of documents relating to the founding of the college and a collection of old medical books and prints also attracted considerable interest.

The first home of the school in Bell's-court, Pilgrim-street (picture made in 1928).

In the evening the president of the college, Sir Thomas Oliver, held an official reception followed by a conversazione and dance. Nearly 800 guests were received in the Great Hall of the college, among them many distinguished representatives of other universities. Messages of congratulation announced by the dean, Prof. Stuart McDonald, included one from the Faculty of Medicine in New York.

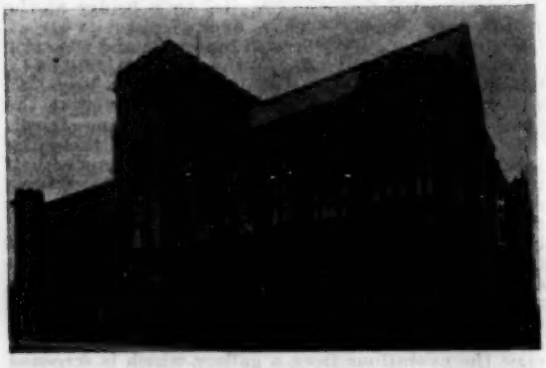
The president then welcomed the guests on behalf of the council and teaching staff of the college in a brief address, holding the occasion to be more appropriate for a reunion of old friends than for a formal account of the progress of the college during the past century.

The expression of his hope that the coming century would bring even greater prosperity to the college than it has experienced in the past was warmly received. There followed a presentation to the president by Prof. Grey Turner and Dr. W. D. Arnison of the first copy of their book on the history

The second home in the hall of the Barber Surgeons' Company in the Manors, 1834 to 1851.

of the college, noticed on another page; his thanks included an expression of admiration for the effort made by its authors to spare time from exceptionally busy professional lives to compile this history.

Those guests who remained in the Great Hall were then entertained by a veteran team of sword dancers. Others were privileged to listen to a short lecture by Prof. Grey Turner on the early history of the college, illustrated by lantern slides. He described how a humble beginning was made in 1832 with a small building in Bell's-court, Pilgrim-street, at a time when the city numbered under 50,000 inhabitants, a sixth of its present population. In another part of the building Prof. R. B. Green



The medical school to-day.

and Mr. R. Whillis exhibited an interesting film of their own making, illustrating the dissection of the brain.

On Friday morning, the clinical facilities of the college were open to inspection by visitors at the Royal Victoria Infirmary, at the Princess Mary Maternity Hospital, and at the Fleming Memorial Hospital for Sick Children. Exhibitions and demonstrations were to be seen in the department of dentistry at the Sutherland dental school and the Newcastle-upon-Tyne Dental Hospital, and also in the department of bacteriology and the public health laboratory at Armstrong College.

A luncheon in the Great Hall of Durham Castle was immediately followed by a procession to the Cathedral Chapter House, where a convocation was held; Lord Londonderry, chancellor of the university, presided, having made a special journey by air from London, and the magnificent Norman building formed an admirable setting for this impressive ceremony. Honorary degrees were conferred as follows:—

Doctor of Civil Law.—Sir Hilton Young and Sir Holburt Waring.

Doctor of Hygiene.—Sir Francis Dyke Acland and Dame Janet Campbell.

Doctor of Surgery.—Major-General J. A. Hartigan, Mr. J. W. Leech, M.S., M.P., and Mr. William Robinson.

Master of Arts.—Dr. W. D. Arnison.

The celebrations were concluded with a commemoration service in Durham Cathedral to which all visitors and undergraduates were invited, when the Bishop of Durham, Dr. Hensley Henson, visitor of the university, delivered an address.

MANCHESTER MEDICAL SOCIETY

CENTENARY CELEBRATIONS

THE opening general meeting of this society took place on the first Wednesday of October, 1834, and the centenary was accordingly celebrated on the same day this year. Dr. E. Bosdin Leech, who is president, expressed his pleasure at occupying the chair held by his uncle, Dr. Daniel J. Leech, in the jubilee year. The society's life had, he said, been spanned by two memberships, that of Dr. Daniel Noble, who being one of the original members was present at the jubilee, and that of Dr. Judson Bury, who was present with them now. Sir Thomas Barlow had come from London to join them; his span of life was not far short of that of the society itself.

PICTURESQUE EPISODES

The main part of Dr. Leech's presidential address was devoted to the visit of Prince Charles Edward in 1745 and the part Manchester doctors and others practising medicine took in it.

On the losing side were Dr. John Byrom, poet, unqualified practitioner and inventor of a shorthand system; Dr. Thomas Deacon, non-juring bishop and general practitioner, with several members of his family, one of whom, Thomas Theodorus Deacon, was executed later; Maddock, apothecary's apprentice, who turned traitor; the Dawsons, father and son, the former of whom gave shelter to Lady Barbara Fitzroy, a grandchild of Charles II., while the latter has been made famous by Shenstone's ballad, according to which his fiancée attends the execution and dies at the same time as her lover; and Syddall, the barber, who in the '45 suffered the same fate as did his father after the '15. On the prosaic side were Samuel Kay, rigid nonconformist and introducer of cod-liver oil, and his cousin Richard Kay, a Bury doctor of long prayers who gave a description of the retreating Highlanders; also Peter Mainwaring, the aristocratic leader of the Georgian party, who wanted to fight the enemy with scythes, shovels, and mopsticks. The fate of the participants was traced as far as possible, including that of the heads of Syddall and Thomas Deacon, junior, which were placed on the Manchester Exchange as a warning. One night the heads disappeared and it was not till 90 years later that their fate became known, when Dr. James Bardsley after dinner one night told the story how his patient Miss Frances Hall on her deathbed told him her brother Edward Hall (later a surgeon of the Manchester Infirmary)

had, by means of a ladder placed across the street, removed the heads and buried them in their King-street garden.

Other episodes showed how shipwreck had brought John Roberton and a coach accident had brought James Braid, the inventor of the word hypnotism, to Manchester, and how Bispham had left it to become king's physician, and Samuel Cave, owing to lack of labels on infirmary medicines, with the result that one of his patients had eaten his ointment. He also told of body snatching troubles and the attack on the Cholera Hospital in 1832, when a headless body had been found in a coffin, as well as of the life of Dr. Samuel Silverthorn Bailey who, after studying medicine in Manchester, acted as surgeon with Nelson and finally founded the Somerset Hospital at Capetown. The fates of Lavinia Robinson, who disappeared in the frost of 1813 and who later was said to have been put into her grave in a solid block of ice, and of Miss Hannah Beswick, who was embalmed and kept above ground 100 years in order to prevent premature burial, were also narrated.

BANQUET

At a dinner held at the Midland Hotel the guests included the following:

The Lord Mayor of Manchester, the Bishop of Manchester, the Chairman of the City Libraries Committee (Councillor Maitland), the Chief Librarian (Mr. Nowell), Mr. E. F. Finch (President of the Sheffield Medico-Chirurgical Society), Dr. J. A. Hargreaves (President of the Leeds and West Riding Medico-Chirurgical Society), Mr. Robert McDougall and Sir Christopher Needham (Manchester University), Dr. A. J. Hall (Sheffield), and Mr. Aubrey Herbert, as well as the following honorary members: Lord Crawford, the Dean of Manchester (the Very Rev. Dr. Garfield Williams), Sir Walter Moberly, Sir Holburt Waring, Mr. Zachary Cope, Sir Thomas Barlow, Mr. Walter Cobbett, Dr. Murray Bligh, Prof. E. Mellanby, Dr. J. A. Ryle, Mr. P. W. Hull, Dr. Morley Fletcher, Sir Humphry Rolleston, and Mr. Morriston Davies.

The toast of "The Society" was proposed by Lord Crawford and responded to by the president; that of "The Guests" by Dr. A. Ramsbottom with response by the Lord Mayor and Dr. Hall. Mr. William Coleman sang the Rev. W. Felton's "Farewell-Manchester," said to have been sung by Prince Charles Edward when he left Manchester.

MEDICAL EXHIBITION

The history of medicine in Manchester is well told in an exhibition opened on Oct. 1st by Mr. Cobbett in the new public library. Of the twelve display cases—

One is given to non-medical books by Manchester medical men, such as Charles Clay's books on coinage, Ferriar's Illustrations of Sterne and Roget's Thesaurus. A second is devoted to medical works produced locally—James Braid's "Neurypnology," Blackley's "Catarrhus Æstivus," Perceval's "Medical Ethics," Cogan's "Haven of Health." Another case is used for rarer books belonging to the medical library of the University, especially early printed books such as Guy de Chauliac (Venice, 1480). There is also an interesting fifteenth century manuscript on urines, and more modern rare books such as Beaumont's work on the gastric juice (Plattsburg edition), Parkinson's shaking palsy, and Addison's book on suprarenal disease. Two cases are devoted to the vaccination controversy between 1798 and 1816, on which subject the medical library is especially strong. Nearby is the society's history with the original agreement signed by the first members; and in another place are books, papers, and relics of body snatching days. One case has personal and medical mementoes of the first president, Dr. John Hull. A collection illustrating the history of the stethoscope has been brought together, the instrument used by Dr. Hull himself being an early example.

Round the walls are Manchester's best medical portraits, including those of Thomas Percival (from the Literary and Philosophical Society), of Edward and Richard Hall (from St. Mary's Hospital), of Dr. Lloyd Roberts (by Orpen), and of Henry Worrall, a former treasurer of the Manchester Infirmary. In addition there is an interesting collection of pictures of the Royal Infirmary illustrating its development from the earliest days. The exhibition will remain open till Oct. 20th.

A history of the society by Dr. E. M. Brockbank is shortly to be published. His son, Dr. William Brockbank, is hon. secretary of the society this year.

MONTREAL NEUROLOGICAL INSTITUTE

On Sept. 27th, a little less than a year from the laying of its foundation-stone, the new Montreal Neurological Institute was formally opened. This institute, under the directorship of Dr. Wilder Penfield, provides for the medical and surgical treatment of neurological patients and is also fully equipped for clinical and laboratory research. The conception of this undertaking is traceable back to the time, six years ago, when Dr. Penfield and his assistant, Dr. W. Cone, came from New York to take up neurosurgery at McGill University. Beds were provided for this work at both the Royal Victoria Hospital and the Montreal General Hospital, and at the former Dr. Meakins made room in his laboratory for a few workers. But it was soon evident, from the rapid growth of work in this neurosurgical clinic that more room and equipment were needed, and thanks to the appreciation and coöperation of their colleagues at McGill a way has been found for the provision of these necessities. The Rockefeller Foundation has given half the money required for building the institute and has endowed the laboratories. The rest of the money needed for the building has been given by a small group of benefactors, while the province of Quebec and the city of Montreal have made themselves responsible for the upkeep of the clinical part.

The result is a building of considerable strength and beauty which stands alongside the Royal Victoria Hospital, at the back of the pathological institute. It is connected with the hospital by a bridge at the third floor which arches over University-street. The fabric is of grey Montreal limestone and the style is in harmony with that of the adjacent buildings. These occupy the lower slopes of Mount Royal at the back of McGill and command a fine view to the south over the city and the St. Lawrence river. The institute contains eight floors, and of these the lower half is devoted to patients and the upper half to scientific work. The second and third floors have about 32 beds for public patients and, on the fourth floor, there is room for 15 private patients. Additional beds for public patients are available in the wards of the Royal Victoria Hospital, and the clinical work as a whole is to be administered by the superintendent and nursing staff of that hospital. Two operating theatres and X ray plant are found on the fifth floor. The theatres are so constructed that visitors may view the operations from a gallery which is screened off by glass in such a way that risks of contamination are minimised, and the necessity for wearing masks and gowns dispensed with. A novel feature is a recess beneath the gallery and behind the operator from which the field of operation can be photographed. This is ingeniously contrived by the use of a long-focus lens and a mirror arranged over the operating field which can be adjusted by the photographer by means of a distant control. Consulting-rooms for the neurosurgeons are provided on the same floor as the theatres and those for the neurologists are on the ground floor. The laboratories, on the sixth and seventh floors, are well arranged and equipped for histological, biochemical, and physiological work. On the sixth floor there are also a library and rooms

for the director and his secretarial staff. The animal houses, on the seventh floor, have been carefully planned and each room has an outdoor run on the roof exposed to the sun. On the top floor is accommodation for the chief resident and for four or five research fellows. As the latter are likely to be foreigners the convenience of such an arrangement needs no emphasis, and it is typical of the care and thought that have gone towards the construction of all departments of the institute. Mention must also be made of the admirably equipped and roomy photographic department on the ground floor, the lecture amphitheatre that occupies part of the ground floor and basement, and the squash court for residents in the upper part of the building.

Ornament has been sparingly used in this building but wherever present it has some bearing upon neurology or anatomy. In this the influence of Dr. Penfield is manifest: he has desired that any decorations used should be significant of the purpose of the institute. On the south-west corner of the building is a dedication stone of his own design bearing the words "Dedicated to the relief of sickness and pain and to the study of neurology," and about these words is the symbolic representation of the sun casting light upon the human brain and spinal cord. In the façade, in positions where the architects called for ornamentation, are plaques of pleasing geometrical design which the tutored eye will recognise as representations of ancient trephines. The main doorway in University-street leads into a square reception room which has been conceived as a hall of neurological fame. The dominating feature here is a copy in Carrara marble of the statue by Barrias, entitled "La nature se dévoilant devant la Science," the original of which is in the Louvre. It shows a draped female figure lifting a veil from her face and shoulders and is perhaps the only work of its kind in which the artist has attempted to symbolise the relationship between scientific research and nature. The hall in which this stands was decorated by Barnet Phillips. Frescoed upon the ceiling is a representation in greyish-black of the neuroglia cells in their proper layers within the cerebellum after a drawing by Golgi. The nerve-cells and capillaries are faintly outlined in the pale ochre background. In the centre of the ceiling is painted the head of Aries the Ram which, in the signs of the Zodiac, presides over the brain. About this are four hieroglyphic figures from the Edwin Smith papyrus which together represent the brain. This papyrus dates back to 3000 B.C. and, according to Dr. William Francis, contains the earliest known reference to the brain in human records. Surrounding the ram's head is a circle bearing a quotation from Galen which, interpreted, is "But I have seen a severely wounded brain healed." This quotation is taken from Galen's commentaries on the Aphorisms of Hippocrates at a point where he criticises the master's statement that a wound involving the brain is invariably fatal.

In a frieze about the room are the names of 14 famous neurologists: Hughlings Jackson, Sir Victor Horsley, and Sir Charles Sherrington from this country; Charcot and Claude Bernard, Cajal, Golgi, von Monakow, Nissl, Alzheimer and Erb, Pavlov, Weir Mitchell, and Harvey Cushing. Their names stand for high endeavour and brilliant research in neurology and neurosurgery on both sides of the Atlantic. Two of them are still working and the last mentioned, Harvey Cushing, was fortunately able to attend the opening ceremony. With him were other distinguished members of the medical profession, some of them pupils of the men whose names are honoured in the way described. Representatives from this country were Dr. Gordon Holmes, Dr. J. Godwin Greenfield, and Dr. Dorothy Russell. After the formal unveiling of the statue in the reception hall by the mayor of Montreal, inaugural addresses were delivered before the assembled guests. Prof. Archibald expressed his good wishes to the institute in a short but gracious speech. Dr. Wilder Penfield gave an account of the significance of the new institute, the events that led to its construction, and spoke of the idealism behind the work which will go forward within its walls. In the first of the two foundation lectures Dr. Harvey Cushing gave an historical review of psychiatry, neurology, and neurosurgery. In the second foundation lecture Dr. Gordon Holmes put forward a strong plea for clinical research. He spoke of the necessity for careful bedside observation, accurate and simple description, and, above all things, devotion to truth.

The New Neurological Institute

A final word may be said concerning the geographical and national relationships of the institute. Attached to the famous University of McGill and situated in the cosmopolitan city of Montreal with its large French population, it serves as a link between Canada, the United States, England, and France, and it may be expected to attract research workers from all these sources as well as from other countries. Its director, Dr. Penfield, has personal knowledge of the foremost schools of neurology on both sides of the Atlantic and doubtless he will incorporate much of his experience in directing this new school in Montreal. At the same time there is to be no slavish imitation of any of the older foundations. It is desired to establish a school that shall be essentially Canadian in atmosphere and teaching.

PUBLIC HEALTH

Hospital Beds

THE annual report[1] of the Ministry of Health discussed the problems opened up by surveys of the enlarged public health services now administered by county and county borough councils. A proper understanding and arrangement with voluntary hospital management was one of the issues. Sir George Newman carries the matter further in his report[2] as chief medical officer to the Ministry. Reliable information about the actual number of beds available *for the sick* throughout the country has hitherto been difficult to obtain. Standards of bed-spacing are not uniform in institutions managed by various authorities, although certain minima were laid down by the Ministry under the Poor Law many years ago. In certain areas at times of stress there is undoubtedly serious overcrowding both in voluntary hospitals and council institutions, and beds in the latter which are really unsuitable for those, at least, who are acutely sick, but which have been absorbed at such times for the purpose, have sometimes been permanently labelled as for the sick. In poor-law institutions the borderline between the sick wards, nurseries, and the "house" has often been ill-defined in practice, if not on paper. Figures, therefore, which* were widely quoted during the passage of the Local Government Act through Parliament, as showing the provision for the sick made by local authorities, require close examination before a comparison with the number of beds in voluntary hospitals can be formulated.

THE NUMBER AVAILABLE

For these reasons, a statement contained in Sir George Newman's report (p. 194) is of first-class importance. It is now possible to state approximately the accommodation for sick persons, in broad categories, made under council and voluntary management. Exclusive of hospitals for patients suffering from mental and acute communicable diseases, there appear to be about 1850 hospitals with 215,000 beds; of these, some 860 council institutions (including hospitals) provide 143,000 beds for the sick and about 1000 voluntary hospitals have 72,000 beds. Included in these figures, it should be noted, are 130 council hospitals and sanatoria for tuberculosis with 14,674 beds and 135 voluntary hospitals with accommodation for 9000 cases of tuberculosis. For this disease there is some seasonal or epidemic interchange of accommodation with acute communicable disease in hospitals provided by local authorities, and the figures generally require slight qualification in other respects, but for practical purposes they give a true picture of the position. In addition, local authorities possess 172 hospitals with 139,000 beds for mental disease and deficiency against 184 with 17,000 beds voluntarily provided; and there are 954 hospitals for acute communicable disease with 37,638 beds entirely under the control of local authorities.

Taken together, in round numbers, local authorities provide about 2000 hospitals and about 320,000 beds for all forms of disease or defect, as compared with rather less than 1200 voluntary hospitals having 90,000 beds. Even after deducting the provision made for mental conditions and communicable diseases, which statutory obligations have left mainly in the hands of the councils, the latter possess accommodation for the sick approximately double in volume that supplied by voluntary effort. When, however, the comparison is limited to general hospital accommodation, the contrast is not quite so marked. Councils own 36,059 beds in separate general hospitals now administered under the Public Health Acts and 17,820 in such hospitals still under the Poor Law Acts, a total of 53,879, whereas the corresponding number of voluntary beds is 49,673. The councils continue to provide beds for the sick in mixed institutions under the Poor Law numbering 68,270, over and above the 53,879 already mentioned, but it is certainly true that a large proportion of these are permanently occupied by aged, infirm, and chronic patients, not comparable in character to voluntary hospital patients. Indeed, a far larger fraction of the occupants of beds in council general hospitals are of a chronic type than will be found in voluntary hospitals. By way of illustration, an analysis of the population of the institutions, belonging, on the one hand, to a large county borough and, on the other, to an industrialised county, may be quoted; in the latter 41·6 per cent. of the inmates were chronic and incurable cases and only 8·5 per cent. acute or subacute, while even in the town as many as 29 per cent. were chronic or incurable, although the proportion of acute cases was much higher—viz., 48 per cent. Sir George Newman, in discussing the points to be borne in mind by those interested in voluntary hospitals, lays emphasis on the statutory duty of local authorities to provide for *all forms and stages* of sickness among the poor, the patent inability of voluntary hospitals in most areas to accommodate all the acute sick, and the consequent inadmissibility of the view sometimes held that the voluntary hospitals should be free to pick and choose their patients and relegate the chronic and less interesting to the rate-provided institutions. Clearly, no fruitful negotiations can be commenced on this assumption.

Number of Beds Available for the Citizens of Four Large Cities

Population at Census 1931	Glasgow 1,088,461	Birmingham 1,002,603	Liverpool 855,539	Manchester 766,333
Total municipal beds	6083	4408	6138	4967
Total "public" beds in voluntary hospitals	1835	1307	1217	1064
Total beds, municipal and "public" voluntary	7918	5715	7355	6032
Municipal beds per 1000 population	5·59	4·39	7·17	6·48
"Public" voluntary beds per 1000 population	1·69	1·30	1·42	1·39
Total beds per 1000 population	7·28	5·70	8·59	7·87

THE NUMBER REQUIRED

As to the number of beds actually required for the physically sick by large towns, some general idea may be reached from a detailed statement contained in the report derived from data furnished by Glasgow, Birmingham, Liverpool, and Manchester. The total number of beds, statutory and voluntary, in these cities at the middle of 1933 was respectively 8751 (8·04 per 1000), 6197 (6·18 per 1000), 8423 (9·84 per 1000), and 6683 (8·72 per 1000). Many, of course,

[1] See THE LANCET, Sept. 15th, p. 607.
[2] On the State of the Public Health. H.M. Stationery Office. 4s. 6d.

are occupied by patients not locally resident and a true comparison must eliminate these. The medical officers of health have estimated their numbers with the results tabulated above.

As Sir George Newman points out, the differences in the ratios must not be attributed entirely to variations in council or voluntary hospital policy. Local customs and social conditions, such as housing, no doubt exercise a considerable effect upon the demand for hospital treatment, but it seems reasonable to conclude that, in these days, no fewer than 6 beds per 1000 (exclusive of mental disease and deficiency), and probably more nearly 8 per 1000, are required by town-dwellers, irrespective of the size of the population, if the full benefits of modern medicine, surgery, and midwifery are to be put at their disposal.

PANEL AND CONTRACT PRACTICE

Deputising on Insurance Committees

THE question of deputy medical representatives on insurance committees has come before the Panel Conference again this month as it did a year ago on a motion from London. The decision to press for such deputies was passed at the last panel committee in September. The Insurance Acts Committee has discussed the matter with the Ministry of Health who point out that legislation would be required and if deputies were allowed the concession must apply to every member of the insurance committee and not to the medical members alone. It had moreover always been understood that those selected to serve on insurance committees should be able to give time to the work and to become expert in handling delicate and intricate matters. The real problem underlying this resolution is the training of practitioners on panel committees so that when the time comes for the older and more experienced men to drop out of office others will take their place with some experience of the duties they will be called upon to perform. The proposal to legalise deputies is not likely to be popular with insurances committees, which will probably prefer to retain their customary counsellors as long as possible; but it is time to consider seriously whether the present policy of keeping the same men in office as their representatives on outside bodies is really in the best interests of the medical profession. On the one hand it may be argued that if men are willing to do this work and are doing it satisfactorily they should be allowed to continue to do it. They become more and more expert in dealing with any situations which may arise and are consequently better able to represent their panel committees than less experienced men. This is obviously the collective view of many such committees, for year by year the same men continue in office. On the other hand it may be argued that the panel committee would be a more effective body if many of its members were enabled to become experienced in the work of outside bodies by rota or other suitable arrangement, always with a care that at least one experienced man should be a representative whilst another was learning. The profession as a whole is grateful to men who are willing to give up so much of their spare time to unremunerative work of this kind, but it may be inexpedient to accept so much of a particular individual's time when there are others willing and entitled to share the duties. Left out in the cold the other members lose interest and are likely to drop out. London thinks that deputies, although only attending in the absence of the real representative, would obtain a training which would be helpful in the future. That should be worth trying.

An Extended Service

In an address to the Association of Welsh Insurance Committees, Dr. D. Llewelyn-Williams, medical member of the Welsh Board of Health, pointed out how nearly the insurance medical service had been at various times to full fruition. In 1914 provision was made in the Budget and money actually voted by Parliament for the provision of (1) medical specialists, (2) general practitioner clinics, (3) laboratory services, (4) nursing, (5) health lectures—when the war put an end to that and other dreams. In 1920 money was found to establish a regional medical service, with some but not much consultant function; and in 1925 the question again arose of extending the scope of medical benefit to include specialist services. A scheme was then drawn up to make available to insured persons a system of specialist services, laboratory aids to diagnosis, examination by X rays, massage, mechano-therapeutics and other things, but again something intervened. The coal crisis of 1926 resulted in sickness claims being so heavy as to preclude for the time any extension of medical benefit. But Dr. Llewelyn-Williams does not admit defeat and is still hopeful that the recommendation of the Royal Commission of 1926 to include specialist advice and laboratory services will soon be realised. Without laboratory facilities, he remarked, a doctor has often to work in the dark. In Wales they had two excellent laboratories, one at Cardiff the other at Swansea, but there is no such provision in the north of the principality and he was looking to see a laboratory established in connexion with University College at Bangor and supported by the northern county councils and insurance committees.

Placebo Prescribing: an Objection Met

Sir George Newman has pointed out in his annual report that although extravagant prescribing has diminished yet the cost of general prescribing per head of insured population is slowly increasing, so much so that if it goes on there will be a danger of there not being sufficient money to pay for the really necessary but expensive drugs like liver extract and insulin which must of course be provided under the service. He further suggests, by quoting figures from Scotland, that much of the medicine prescribed by English practitioners is given on the placebo basis. The medical member of the Welsh Board of Health has remarked that some too of his countrymen are "unreasonably enamoured of the bottle of physic." It was suggested in this column recently that the payment of a small sum by the patient for each prescription handed in would solve this difficulty (1) by reducing the cost to the insurance fund of medicines supplied, and (2) by creating a slight deterrent against the continual demand for medicine not really necessary by making the patient contribute towards its cost: in other words, it would tend to stop placebo prescribing. Of this proposal a correspondent writes:—

"I do not feel that the last paragraph of the article on placebo prescribing is logical or that the remedy suggested is a desirable one—this quite apart from the general question whether panel patients should pay for drugs separately; the adoption of that principle might be desirable on other grounds and if it involved a slight reduction in weekly payment on behalf of the patient would cost him no more in the long run. But

far from stopping placebo prescribing, surely the very fact that the patient paid something towards the cost of his bottle of medicine would confirm his faith therein. You say 'the public appreciates what it has to pay for.' As it is, panel patients have a suspicion that the panel doctor's medicines are not so good or 'so strong' as those prescribed by private doctors or by the same doctors for their private patients. A common remark is: 'I told him I didn't want any panel stuff and he gave me a bottle of really good medicine. You see they won't let them give really good medicine on the panel except when you are very ill indeed.' Whether we are wise to attempt to take away the prop that a bottle of medicine provides when we have so little else curative in our armamentarium is again another matter. It seems likely that the quack dispenser would have scope for a flourishing trade if doctors really gave medicine only when it is required. Before we manage to do without a bottle of medicine we shall probably have to invent some other symbol or idol. But to make a patient pay for something which he already thinks is worth more than it actually is seems to me bad policy from the educational point of view."

The remedy was suggested chiefly on financial grounds; but, however, "when we have so little else curative in our armamentarium" it would certainly in our view be unwise to attempt to abolish the bottle of medicine, which helps psychologically, if not always medicinally, to restore the patient to health merely on educational grounds. Probably the personality of the prescriber is the most important factor in treatment. There is just as much placebo dieting or placebo sunlight prescribed as there is placebo medicine; but in the former all the cost comes on the patient and none on the insurance funds. The bogy of "panel stuff" has very little foundation; the main reason why patients prefer the doctor's medicine is the convenience of obtaining it without the delay and trouble associated with a further visit to a chemist. Further, they feel that there is less possibility of a mistake. "Has he given me the wrong medicine?" is a definite cause of anxiety among patients. Since placebo prescribing cannot yet be eliminated, in the interests of the patient, the proposal to charge him something for his prescription may prove to be a sound one. It is embodied in the new Canadian proposals.

On Charging Fees

At the Panel Conference to be held next Thursday at B.M.A. House some change is to be proposed in Clause 7 (iii) of the terms of service, dealing with fees charged to insured persons. A weekly paper suggests that any insurance doctor who charges a fee to an insured person should be fined £50 without further ado. There are, however, obviously occasions when a fee is quite proper. The story dates back to an occasion when an insurance doctor was summoned before his medical service subcommittee and heavily fined, when he had not the remotest idea that the patient who had paid him a fee was an insured person, let alone on his own list. He may have joined the list years before and not required any treatment in the meantime. It is not unusual for a patient to give no indication to the doctor that he is insured, or that he is on the list of the doctor he is consulting; he may pay him a fee thinking (as some misguided persons still think) thereby to obtain better treatment, and then complain to the insurance committee about it. The Ministry of Health has already decided that Clause 7 (iii) does not apply where a doctor inadvertently charges his own patient. It has now been agreed between the approved societies and the Insurance Acts Committee that this clause should contain words which make it clear that where a doctor, through a genuine mistake, charges an insured person on his own list proceedings need not be instituted. The fee of course must be returned. As a set-off to this concession the period during which an insured person, having obtained private treatment from an insurance doctor, can claim a refund, is to be extended from one to three months.

There are of course cases where the patient is obviously too ill or the emergency too sudden for it to be explained at the time that the patient is an insured person—Clause 7 (iii) is really designed to meet such cases—but the use of the clause has been extended by many insurance committees. Accounts are ordered to be withdrawn, fees are repaid under the clause to insured persons who were at the time quite able to state their insurance status and to claim treatment as insured persons. But because they think they prefer "private treatment," with its convenience of private medicine supply (no waiting at the chemist's), they obtain such treatment surreptitiously, deliberately hiding the fact that they are insured persons; only when the treatment is finished and payment requested they say "Oh, I am an insured person . . . the insurance committee will pay you for this." The insurance committee is popularly thought to have huge funds from which to pay doctors in such cases or to refund the patient for fees they have paid to doctors. In fact there are no such funds. These claims have long caused much bother to insurance committees and doctors, and it is time for an amendment to this clause requiring the committee to satisfy itself that there was some genuine reason for withholding information as to insurance status. Against this change it has been argued that an insured person is entitled to treatment without payment because of the stamps on his card; but if a railway season-ticket holder does not produce his ticket when required he has to pay again and does not necessarily get a refund. If they can do so patients should state they are insured persons and produce their medical cards.

The I.A.C. seems to have considered the clause almost solely from the point of view of the doctor inadvertently charging his own patient. The medical service subcommittee for London deals with a large proportion, possibly half, of the disciplinary cases in England, and yet it is difficult to recall, since the case cited above, a single case under Clause 7 (iii) coming up for decision and certainly none in which an insurance doctor inadvertently charged a patient on his own list. It is too rare an offence to justify the extension of a time-limit from one month to three. The new clause was only to be accepted if the time-limit was extended, but the I.A.C. has now waived the objection. The conference however would surely do well to turn its attention to the common practice of insured persons not mentioning insurance status when obtaining treatment, and to amend the wording so as to make it clear that before a refund can be obtained adequate reasons must be given for not mentioning insurance status. It might well consider, too, the advisability of sending all these claims not to the medical benefit but to the medical service subcommittee, which contains an equal number of doctors and laymen with an independent chairman. Claims under Clause 7 (iii) are always decided upon the papers. Since the attendance of neither party is required, the service subcommittee would seem the fairest one by its constitution to determine a matter in dispute between doctor and patient.

CORRESPONDENCE

GEE'S DISEASE

To the Editor of THE LANCET

SIR,—The literature of Gee's disease (which originally included cœliac disease and tropical sprue and may now be held to include those cases variously described as idiopathic steatorrhœa and "non-tropical sprue") has expanded considerably in recent years, and we are indebted to Dr. Izod Bennett and his collaborators for much valuable work on the subject, some of which he describes in your last issue.

With all their careful researches, however, no sound clue to the underlying causal pathology of these conditions has been forthcoming. In 1923 I gave a communication to the Association of Physicians of Great Britain and Ireland entitled Fatty Stools from Obstruction of the Lacteals, a condition first described by Sir William Gull in association with tabes mesenterica. This was later published in *Guy's Hospital Reports* (1924, lxxiv., 1). In this paper I described cases of tabes mesenterica in which lacteal obstruction with gross overloading of the lacteals with chyme was demonstrated at operation, and drew attention to the fact that the clinical phenomena of "the cœliac affection" could be reproduced by this mechanical effect. Ten other cases of adult steatorrhœa have come to my notice since. The common syndrome includes stunting of growth, anæmia (both macrocytic and microcytic), bony changes, tetany, abdominal enlargement, and diarrhœa with bulky fatty stools containing split fats as the outstanding features, although they do not all appear in every case.

Confronted by such striking similarities in the three conditions (tabes mesenterica, cœliac disease, and sprue), I put forward the suggestion that the leading symptoms of cœliac disease and sprue (and I would now add the adult cases referred to by Dr. Bennett) might best be explained on the same basis of lacteal obstruction. Cases have been reported in which similar obstruction with over-distension of the lacteals was specifically noted at operations for appendicitis in cases of tropical sprue. I have recently seen a man, aged 38, with the syndrome, including sore tongue, whose family doctor of boyhood days was able to bring forward clear evidence of tabes mesenterica in childhood, and in whose mesentery calcified glands had been seen in adult life at the time of an appendicectomy. I have also found fibrotic and calcified glands lying in the mesenteric fat at an autopsy on another adult case of chronic non-pancreatic steatorrhœa.

It is quite clear that the lacteal obstruction in tropical sprue is not an effect of tuberculosis. I suspect that some cases of Gee's disease (the commencement in childhood is suggestive) represent a sequel of healed mesenteric tuberculosis, but there is no reason why mesenteric inflammatory disease of other type should not also cause obstruction in the absorbent system. The fact that lacteal obstruction has not been demonstrated in the rare autopsies reported in cases of Gee's disease proves nothing, for in the later days of their life patients with these conditions are not taking enough food to overload the lacteals.

Although this hypothesis has been neglected by recent workers in the subject, I would once more bring forward what seems to me a very obvious and satisfactory explanation for the fatty diarrhœa in these states, and secondarily for the bony changes and tetany which follow excessive calcium excretion in the form of soaps. The anæmia consequent upon long gastro-intestinal irritation, diarrhœa, and food deficiencies is a later and graver consequence.

I am, Sir, yours faithfully,

London, W., Oct. 8th. J. A. RYLE.

To the Editor of THE LANCET

SIR,—Dr. Izod Bennett draws attention to the peculiar form of blood-sugar tolerance curve found in this disease. In the light of recent work on the sugar-tolerance curve, I think it is possible to see an explanation of this phenomenon which will not involve us in the assumption that there is any derangement of carbohydrate metabolism in this disease.

In a non-diabetic subject the sugar-tolerance curve is strongly influenced by the diet which the patient is taking. If 50 g. of glucose are given to a healthy fasting subject who has been living on a diet composed almost exclusively of fat, the resulting blood-sugar curve will be indistinguishable from that of mild diabetes mellitus. If the same test is repeated on the same subject, but when he has been taking a diet composed solely of carbohydrates, the blood-sugar curve then will be of the flat type, in that it rises little above the fasting blood-sugar value and has fallen below this value in under the hour. Now from the point of view of the food absorbed a person with steatorrhœa is comparable to the subject taking a high carbohydrate diet. The body tissues in both cases receive a relative excess of carbohydrate. Such a diet invariably results in the flat type of sugar-tolerance curve. In the light of this evidence we are justified in saying that the flat type of sugar-tolerance curve is not characteristic of sprue or of Gee's disease, but is characteristic of any condition in which the mixture of foodstuffs absorbed into the body contain an excess of carbohydrate.

It may be of interest to note that the flat type of tolerance curve found in a healthy subject on a high carbohydrate diet is brought about, not by deficient absorption of carbohydrate, but probably by an increased rate of removal of sugar from the blood. There is no reason to think that the flat curve in idiopathic steatorrhœa is brought about in a different way. I am, Sir, yours faithfully,

H. P. HIMSWORTH.

Medical Unit, University College Hospital, Oct. 8th.

TREATMENT OF RHEUMATOID ARTHRITIS WITH GOLD SALTS

To the Editor of THE LANCET

SIR,—For the diagnosis of rheumatoid arthritis does Dr. Forestier (THE LANCET, Sept. 22nd, p. 646) rely on a general clinical picture, on radiograms (if so, what are his criteria?), or on the blood sedimentation-rate? I rather infer the last to be a main point in the diagnosis, otherwise there seems no point in publishing the graph, Fig. 1, which details average differences between the various types of arthritis. An exhaustive series of tests of the sedimentation-rate at the Charterhouse Rheumatism Clinic does not confirm the view that a high rate is in any way diagnostic of rheumatoid arthritis. Rapidity of blood corpuscle sedimentation is not a very reliable or helpful test in any case—far inferior to the vanadic acid sedimentation.

Dr. Forestier suggests that rheumatoid arthritis always has a tuberculous factor or substratum, and that herein lies the reason for the value of the gold

treatment. In this country we have never subscribed to the well-known French view. I am led to wonder whether it is not the sulphur rather than the gold constituent of the complicated salts injected which is responsible for the improvement. That spondylitis ankylopoietica, or poker-back spondylitis, responds to the injection of these salts is a matter of extraordinary interest—I assume that Dr. Forestier would not regard such cases as tuberculous. Hitherto there have, I believe, been only two successful methods of dealing with this very toxic, intractable, and progressive disease. One is by vaccines as given at the Charterhouse clinic with almost invariable success; the second by wide-field X radiation, which is now also used in selected cases at the same clinic under Dr. Gilbert Scott's direction with very fine results. That a third method can be added is all to the good.

One statement of Dr. Forestier's cannot pass unchallenged. He says that vaccine is of little use in rheumatoid arthritis except in very early cases. My own experience extending over 20 years or more in all stages of the disease is confirmed by results at the Charterhouse clinic. Here rheumatoid arthritis even in its worst stages has been found to derive great benefit from vaccine treatment; figures taken from the third report of the clinic show that of 487 cases, 62 only failed to improve.—I am, Sir, yours faithfully,

London, W., Oct. 2nd. H. WARREN CROWE.

URETERO-COLOSTOMY

To the Editor of THE LANCET

SIR,—I would like to thank Mr. Cyril Nitch for having pointed out a possible ambiguity in my paper, which arose, I fear, through somewhat lax punctuation. No one knows better than I the method he adopts for, through his kindness, I have been privileged on more than one occasion to study and admire his technique in uretero-colostomy. His address and description of his film given at the urological section of the Royal Society of Medicine were so clear as to leave his audience in no doubt as to his choice of procedure. After watching and hearing him it seemed to me that the only possible departure from the ideal lay in the manipulation of his especially designed tube up the rectum after the abdomen was opened. The interruption to the routine of a somewhat complicated abdominal operation by the disturbance of the passage of any sort of instrument, whether a leaden tube or a sigmoidoscope, would appear a possible disadvantage, and this would especially be the case if a low pelvic swelling, such as carcinoma of the prostate, interfered with its easy passage. The surgeon would enter upon the operation in a happier state of mind with the knowledge that he had already accomplished the rectal part of the technique, and was not dependent upon the skill and manipulations of a second assistant trained in proctological manipulation. Inflation and deflation of my bag, when it is in situ, can be achieved by even the most inexperienced theatre nurse, and I am inclined to adhere to my claim of simplicity.

As to the question of sepsis, I gave reasons why I believed the bag method helped to diminish the risks. In a Coffey No. 1 operation I think the risk, though it exists, is negligible, but I agree that in the Coffey No. 2 there is a possible loop-hole in transfixion of the contaminated bag. Assuming however that the needle and stitch which have traversed it are recognised to be septic and insulated accordingly from the operation field, instruments which have touched them and gauze which has protected them being duly discarded, the risk is infinitesimal compared with the risks in any other operation involving incision of the colon. The most minute puncture of the bowel is easily seen in the section stretched upon the bag, and, before the opening is made, this section, rendered prominent by the distension from within, permits of easy isolation by packing from the rest of the abdominal contents.

In any variety of this operation I believe the greatest danger of sepsis arises from subsequent infection of the peri-ureteral lymphatics by bowel organisms rather than from direct operative soiling.

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 3rd. JOHN EVERIDGE.

ADMINISTRATION OF FLUID IN GALL-STONE SURGERY

To the Editor of THE LANCET

SIR,—I have been on holiday and must apologise to Dr. Hubble for so long a delay in replying to his letter in your issue of Sept. 1st. I think he has mistaken the gist of my remarks. I was referring to *continuous* intravenous administration of glucose and saline, the main point of which is the very slow introduction; whereas Dr. Hubble says "the only advantage which the intravenous method has over other methods is the rapidity of the addition of fluid." He rather scoffs at the idea of the retention of this fluid. I can best answer this by a concrete instance. A man with pyloric stenosis due to chronic duodenal ulcer, and with obstructive vomiting, was given 29 pints of glucose saline by the continuous method. In six days he had gained a stone in weight and was converted from a very poor operative risk into quite a good one; in fact, he has had gastro-enterostomy done and passed through the operative period with no disturbance of any kind. Everything he was given in the way of nourishment was carefully measured and it was found by gastric lavage that he was losing much more fluid from the stomach than he took by mouth. He was a typical example of the kind of patient to whom it is essential to give large quantities of fluid before operation and a good illustration of the benefit conferred by the method I was advocating in my paper.

I am, Sir, yours faithfully,

Leeds, Oct. 6th. E. R. FLINT.

UVEO-PAROTID TUBERCULOSIS?

To the Editor of THE LANCET

SIR,—I was much interested to hear of the new cases of uveo-parotitis recorded in your last issue by Dr. Davies, Dr. Tait, and Dr. Rees. Including the two cases reported by Dr. Thomson and myself, there have now been at least six new cases of this syndrome recorded in the literature since we reviewed the condition in 1933—namely, those of the above-mentioned authors and that of Mohn. I think it is pertinent to review the pathology of the six cases. Our own Case 1 and that of Dr. Davies developed an apparently identical mottling of the lungs as shown by radiography, in both cases considered to be tuberculous. Both our cases show the histological picture of tuberculosis in the biopsy material. Dr. Rees considered his case to be tuberculous in view of the radiological appearances in 1928, in addition to the opinion of the ophthalmologist. Again, Mohn's case showed radiological evidence of pulmonary tuberculosis. Dr. Tait, however, is not inclined to accept the tuberculous pathology in all these cases, and from the information he gives there is admittedly little in his case to suggest tuberculosis; but as you remark in your leading article, his case has not been completely investigated from this point of view.

The incontrovertible proof of tuberculosis is admittedly the demonstration of Koch's bacillus, but, as we have already pointed out, caseation is never seen in this tuberculous syndrome, and I think it will be generally accepted that the histological demonstration of the tubercle bacillus is almost impossible in a non-caseating tuberculous lesion. One does not, however, hesitate to diagnose pulmonary tuberculosis on clinical grounds in many cases where the sputum is repeatedly negative. Though you point out that "the histological picture is one on which few pathologists will dogmatise," the sections from all our cases have been examined by no less an authority than Prof. M. J. Stewart, who has unhesitatingly labelled them tuberculous.

I have another case of this condition at present under observation; again I am convinced of its tuberculous nature, and it seems quite certain that this syndrome is a good deal commoner than one imagines. I think the points to which future observers should pay particular attention are: first and foremost, an attempt to demonstrate the tubercle bacillus in biopsy material by repeated animal inoculation (and this is most easily done in a case with a skin tuberculide), estimation of blood sedimentation-rate, repeated radiography of the lungs, observation of the pulse and temperature over a long period, the reaction to intravenous gold, as well as such collateral evidence as a tuberculous family history, or a history of pleurisy, amenorrhœa, loss of weight, and the like.

I am, Sir, yours faithfully,

Leeds, Oct. 8th. HUGH G. GARLAND.

PUBLICITY

To the Editor of THE LANCET

SIR,—From time to time you publish in your correspondence columns indignant protests from practitioners whose articles have been quoted by the lay press and who wish to repudiate any responsibility for their appearance. I wonder if there is any advantage in such disclaimers. Those who are familiar with the professional status of their colleagues require no such assurance. Others acquainted with the methods of journalism are perfectly well aware that no precautions can prevent these occurrences. And a tiny minority who might be willing to accuse your correspondents of seeking publicity or notoriety may even interpret the disclaimer as corroboration of the original intention!

In any case nothing can prevent the lay journals from quoting from your columns, extracting the relatively dramatic, and unhappily, on occasion, misquoting and misrepresenting. For the author of the original article to protest is obviously useless. Is it too much to say that not only is it useless but it is unnecessary?

There is another aspect of this subject to which reference may not be inappropriate. The interests of medical men are not by any means restricted to their professional life, and there are certain outside activities upon which they are, rightly or wrongly, regarded as authorities, and upon which their opinion is considered to be correspondingly desirable. From their familiar association with the use of the telephone, doctors are particularly fair game for attack through this convenient but highly dangerous medium. And once your ear is at the instrument and your arrival admitted and you are inveigled into saying something—no matter what—the mischief is done.

If good naturedly you believe you may be doing a service to the public—and that really is the motive on most occasions—publicity is inevitable. The most fervent request to withhold your name is unlikely to be respected since any news-value attaching to the opinion of one who is being represented to be an authority depends entirely upon his name being mentioned. Alternatively a curt refusal may rebound upon you to your subsequent discomfiture; and those who have once suffered in this way have learned that it pays to be courteous. At midnight, a few weeks ago, the news-editor of one of the daily papers felt unable to rest until he had telephoned to take my opinion upon a "story" just to hand from South Africa, an indignant protest against holding Olympic games for women because there was abundant evidence that some men had actually competed. It says something for my forbearance that my only observation even at this hour was that I knew absolutely nothing about it. Yet this became ingeniously interpreted as an authoritative denial of the rumour. A week later—again at the (apparently critical) hour of midnight—I was approached by another journal in reference to an inquest that had been held that afternoon at which the coroner had expressed his opinion that the suicide of some unhappy young man was due to his having lived too strenuously. "Did I think the coroner was right?" and "what did I suppose the coroner meant?"

It may be that some of us might succeed in fencing ourselves round by a complete secretarial inaccessibility (more appropriate perhaps to a pope than a medical man) and thus receive adequate protection from telephonic assault. But by the time we had acquired an eminence commensurate with such a state, we should be "in the news" anyway.

I am, Sir, yours faithfully,

Oct. 8th, Brook-street, W. ADOLPHE ABRAHAMS.

COLLES'S FRACTURE

To the Editor of THE LANCET

SIR,—In a series of cases of Colles's fracture treated at the Coventry and Warwickshire Hospital, Mr. S. Holzman found (THE LANCET, Sept. 15th, p. 598) that deformity not infrequently developed after reduction. Most surgeons get a number of these fractures which, in spite of successful reduction and routine after-treatment, relapse, to everybody's dismay. This relapse, as Mr. Holzman remarks, usually takes place about the third week of treatment.

Mr. Holzman uses mainly a Carr's splint with occasionally a plaster, when he puts the wrist in the position of flexion, though he does not tell us if he adopts the true Cotton position of flexion and ulnar adduction. I think the high percentage of relapses in his series may be due to the fact, which if he knows he does not stress, that the angle of obliquity of these fractured radii varies. Though classically described as being oblique one may find that the line of cleavage is nearly at right angles to the axis of the bone—i.e., transverse and horizontal. The fragments may or may not have a jagged line of cleavage. If the X ray be a good one it will be noticed that the fragments in this transverse type have smoother ends than in the oblique type. This is also seen in the spiral fractures of the femur and humerus, whereas in the oblique fractures of the clavicle the break is more jagged or greenstick. The importance of this fact is (1) that the more jagged are the surfaces the better the impaction after reduction; (2) the better the adhesion and thus the quicker with less chance of refracture of the ossifying hæmatoma between the surfaces.

The third week is the time when the early osteogenetic tissue is very friable and easily snaps if strain be put on it by excessive zeal in early movements

or massage. The transverse fractures should be put in plaster in a Cotton position. If Mr. Holzman prefers a Carr's splint to plaster, has he made sure that his splints have a proper groove cut in the shaft for some two inches or so proximal to the grip cross-bar? This groove allows pressure to be put by means of a dorsal pad and strapping on the short mobile lower fragment, thus preventing any tendency to backward slip or tilt.

Why must these fractures be still subjected to the much vaunted but dangerous early massage and movements? It has been shown in the large fracture clinics of Mr. Harry Platt and Mr. Watson Jones that in parallel series of cases the movement returns just as well in cases treated entirely by splinting till the fracture be united as where time and money have been spent in early massage. Anyone who has treated a fractured scaphoid of the wrist for three months in plaster will know that good bony union will take place with early return of wrist function.

I am, Sir, yours faithfully,

G. O. TIPPETT, F.R.C.S.

Devonshire-street, W., Oct. 1st.

THE UBIQUITOUS COLD

To the Editor of THE LANCET

SIR,—I have read with interest the letter of Dr. Gordon Tippett on this perennial subject. But is there any problem and is not our profession doing and has it not done its best? We know the nature, the bacteriology, and the prevention of the common cold, but where we fail is in impressing upon that Public which is always clamouring for a panacea and gibing at the doctor because he cannot "cure" a cold, that the evil is in itself and not in the physician. One might well paraphrase Cassius and say:—

> The fault, dear Public, is not in our art,
> But in yourselves.

How many members of the public ever think of secluding themselves during the acute stage of a cold and so preventing the infection of others? They go about in trains, buses, trams, and places of amusement distributing droplet infections with a prodigality worthy of a better cause. They send their children to school heavy with infection to mow down their school-fellows. Even masters will not scruple to infect their classes. Last year, at the request of the headmaster of one of our greatest schools, I gave an address at a parents' meeting upon colds, and I spoke very plainly. But I seem to have made no impression, for this term sees a large percentage of the boys distributing the mixture (of infection) as before, and when it is remembered that one boy can infect a whole classroom during one period of half an hour, one realises the crass foolishness doctors have to fight.

I suppose that a headmaster who dared to issue a notice that any boy sent to school in the acute stage of a cold would be sent home at once would be in the nature of a hero, but he might find himself a martyr. The public must be made to take precautions before anything, and, incidently, the hundreds of nostrums sold by chemists as "sure preventives" should be severely dealt with. To those who would argue that my contention that the public is at the root of the evil will not "stop" the original first cold, I would answer that the individual cold may not always be preventable, but we could at least abolish mass-production.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY.

Harley-street, W., Oct. 9th.

THE EICHHOLZ CLINIC

To the Editor of THE LANCET

SIR,—May I beg the hospitality of your columns to invite members of the medical profession to visit the Alfred Eichholz Memorial Clinic which was opened in July by the Prince of Wales?

It is unique among clinics inasmuch as it is staffed by blind masseurs and masseuses whose very blindness appears to be an aid, rather than a disability, in the development of tactile sensibility.

There are sighted medical supervisors and fully qualified sighted sisters and the very complete equipment for electrotherapy has been specially designed for the use of blind operators.

Apart from its interest as a useful service to the medical profession, it has claims on all who would like to encourage a body of men and women whose otherwise sombre lives are being brightened by the opportunity of doing really useful work.

The clinic is lodged at 204, Great Portland-street, W.1. I am, Sir, yours faithfully,

MOYNIHAN,

Oct. 1st. Chairman of Medical Advisory Board.

THE UREA-CLEARANCE TEST

To the Editor of THE LANCET

SIR,—The method of estimating kidney function described by Dr. McClure and Mr. Stewart in your issue of Sept. 22nd consists in essence of plotting, in three dimensions, log U, log V, and B, as found by observation on normal individuals under different conditions, thus forming a surface in three dimensions; the condition of normality is then, that log U, log V, and B as determined on any particular subject should give a point on this normal surface. Actually they project this surface, cut at different levels of B, on the U–V plane, thus obtaining a series of curves on this plane. This method, which does not postulate any particular relationship between U, V, and B, is theoretically perfect, but in practice, I think, it is not so valuable; for in any particular instance it shows what B the patient would have, were he normal, and this is then contrasted with B as actually found by observation on the patient. This will readily show whether the kidney is normal or subnormal, but if the latter, no numerical expression for the efficiency can be obtained. Van Slyke claims, however, that the figures he obtained for U, V, and B do correspond to a simple relationship, and as a result a numerical expression of efficiency is easily found.

I agree with the writers that a graphic method of evaluating the result is simpler than an algebraic, and such a graphic method is elaborated in Peters and Van Slyke: Quantitative Clinical Chemistry, Vol. II. (Methods), p. 566 et seq.

I am, Sir, yours faithfully,

Glenmore-road, N.W., Oct. 1st. E. HINDEN.

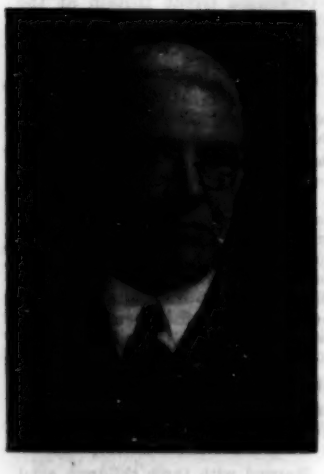
PUBLIC ASSISTANCE NURSING OF CHRONIC CASES.—The Essex public assistance committee has adopted a scheme designed to establish in the committee's institutions a type of attendant to deal exclusively with chronic cases. "Assistant nurses" are to have a two years' course of training and to be paid £30 for the first and £35 for the second year. Upon passing an examination at the end of the course and agreeing to remain in the council's service for at least a year they will be awarded special certificates and appointed to permanent pensionable posts at a salary of £55 rising by increments of £2 10*s.* to £65 a year. They are to be trained by a sister-tutor with a salary of £150, rising by increments of £10 to £180. The scheme has been submitted to the Ministry of Health for approval.

OBITUARY

JOHN MACAULAY BOWIE, M.D., F.R.C.S.

THE death of this well-known Edinburgh doctor occurred with tragic suddenness on Oct. 5th. He was at the wheel of his car and suddenly collapsed and died, but not before he had had the presence of mind to draw into the kerb.

Dr. Bowie was born in Edinburgh in 1874, and graduated in the University of Edinburgh as M.B., Ch.B. in 1898, proceeding to the doctorate three years later. He obtained the diploma of M.R.C.P. Edin. in 1902, and that of F.R.C.S. Edin. in 1903, and from the beginning of his career displayed all-round capacity, filling many resident posts before his appointment to the ear, nose, and throat department of the Royal Infirmary. He was therefore particularly well equipped when he entered general practice, where he was immediately successful and where he took also a keen interest in the politics of his profession. A member of the Edinburgh Insurance Committee, he became chairman of the Panel Committee; he was an energetic member of the B.M.A., and prominent in the establishment of the scheme in Edinburgh for medical service. He displayed his qualities as a sound and well-informed physician at various medical societies, and here his communications often leant to the side of professional conduct. He raised discussions in the Obstetrical Society on the notification of puerperal fever, and was regarded by the Scottish department of health as a particularly reliable practitioner. The continued expansion of his practice was a proof that as a doctor he won and retained the confidence of a large public.



DR. BOWIE

[Photograph by Elliott & Fry

Dr. Bowie had a fine war record. Serving with the 9th Royal Scots at the commencement he was severely wounded and was for a period invalided home. Later he served in Malta and Salonika, and finally took command of the 37th General Hospital in Serbia. He was more than once mentioned in despatches and was awarded the Croix de Guerre.

We have received the following personal tribute to him: "John Bowie was an earnest man in all his connections, easy to work with, ready to argue his case but knowing when it was right to give way. He had earned the reputation of being able to 'put things through,' and among insurance practitioners when chairman of the Panel Committee he was assiduous, courteous, and eminently fair. Although conducting so large a practice and unsparing of himself in public work, he was latterly not a strong man, having some two years ago undergone a serious operation from the results of which he never entirely recovered."

Dr. Bowie leaves a widow, who is a well-known worker in social causes, one son, and two daughters.

ROBERT JOHN GITTINS, M.D. Birm., M.R.C.P. Lond.

As a result of a double tragedy Dr. Gittins, pathologist to the Children's Hospital, Birmingham, lost his life on Sunday last. He, his wife, and a six-year-old boy were members of a party in a small sailing craft on the Severn. The boy was struck by the boom in a squall and knocked overboard, and Dr. Gittins, who dived in after him immediately, was himself drawn under by a strong current. His wife, Dr. Eileen Gittins, made a gallant attempt to save her husband and son, diving in after them, but she finally had to be taken out of the water, having failed to reach them.

Robert John Gittins, who was only 39 years of age, was a native of Birmingham and educated at King Edward VI. School and the University of his city. He graduated in medicine at the University in 1922 and proceeded to the M.D. in 1923, obtaining the diploma of M.R.C.P. Lond. in 1930. He also had the diploma of tropical medicine and hygiene in the University of London. He served with distinction in the war, before qualification, and was awarded the Military Cross. Returning to Birmingham to complete his medical education he became house physician at the Children's Hospital, and in 1924 took charge at the Friends' Hospital, Itarsi, India, in association with his wife, also a medical graduate of the University of Birmingham. They both did admirable work there in connexion not only with the hospital, but with social hygiene and welfare schemes over a wide area. They returned to Birmingham in 1929, when Dr. Gittins spent a year at the General Hospital making a special study of diabetes. He wrote on this subject and other pathological conditions in the medical journals, and was appointed pathologist to the Children's Hospital, since which time he had been steadily engaged in medical research; a good example of his careful work will be found in our columns, a paper written in 1932 in association with Dr. J. C. Hawksley upon Meningitis and Septicæmia due to Morgan's Bacillus.

The tragedy of his death has brought to his brave wife deep and general expressions of sympathy.

WILLIAM CRAIG, M.B., Ch.B. Edin.

THE death has occurred of Dr. William Craig, of Bingley, Yorkshire. He was born at Kelso, Roxburghshire, and was the son of the Rev. A. M. Craig, minister of that town. He received his general education at the Kelso High School, and entering the University of Edinburgh graduated in 1898 as M.B., Ch.B. Shortly after qualification he entered into partnership with his uncle, a practitioner in Bingley, and for over 30 years, with a gap of three years during the war, he practised in the town where he first entered the medical profession and where he had become one of the best-known figures. He was surgeon to the Bingley Hospital, a member of the board of management, honorary secretary to the medical faculty, and actively associated with all the administrative work of the institution. He was for three years in the R.A.M.C. as a temporary officer, seeing service in France and Salonika; he was a life member of the St. John Ambulance Association and an active peace worker, being at one time president of the local League of Nations Union. Dr. Craig, who leaves a widow, was only 56 at the time of his death.

BALFOUR STEWART NICHOLSON, M.D. Glasg., D.P.H.

WE regret to announce the death on Oct. 3rd of Dr. Balfour Nicholson, of Chesterfield, senior tuberculosis officer of the Derbyshire county council. Dr. Nicholson received his medical education at the University of Glasgow, graduating as M.B., C.M. in 1893, and has been for nearly 20 years associated with tuberculosis work in Derbyshire. He served first under the late Dr. Sidney Barwise in Derby. In 1924 he was transferred to Chesterfield, where he took charge of the tuberculosis dispensary, a post which he held until a few weeks ago, when a serious illness, which proved fatal, necessitated his retirement. In Chesterfield he took an active interest in the social life of the borough and was particularly popular with the miners. In 1923 he obtained the degree of M.D. Glasg. with high commendation, writing a valuable thesis on the subject of silicosis. Dr. Nicholson is survived by his widow and three sons.

MEDICAL NEWS

Royal College of Surgeons of England

On Oct. 2nd, at the Ritz Hotel, the president of the college (Sir Holburt Waring) and the vice-presidents (Mr. Wilfred Trotter, F.R.S., and Prof. A. H. Burgess) on behalf of the council entertained at luncheon the four examiners who have been appointed to conduct the primary fellowship examination in Australia, New Zealand, and India at the end of this year. Those present included Mr. G. Gordon-Taylor and Prof. G. A. Buckmaster, the examiners for Australasia; Prof. William Wright and Prof. John Mellanby, F.R.S., the examiners for India; Sir Harry Batterbee, representing the Secretary of State for the Dominions; Mr. S. M. Bruce, High Commissioner for Australia; Mr. A. M. Green, Deputy High Commissioner for India; Mr. F. T. Sandford, representing the High Commissioner for New Zealand; Mr. J. G. McLaren, Secretary to the Australian Commonwealth in London; Dr. Thomas Quayle, of the office of the High Commissioner for India; Mr. Sampson Handley, Mr. Hugh Lett, and Mr. C. A. R. Nitch; Mr. S. Forrest Cowell, late secretary of the college; Mr. H. H. Rew, director of examinations; and Mr. Kennedy Cassels, secretary of the college.

The president, welcoming the guests, said that the occasion was historic for the college. The council had acceded to the request of both the Royal Australasian College of Surgeons and the Medical Council in India to send examiners overseas to conduct the primary examination. Previously the college had sent examiners to conduct the primary in Canada (1929 and 1931), and in Australia in 1931, and the experience had emphasised the demand and the importance of such facilities being offered to candidates in the Empire overseas. Sir Harry Batterbee, proposing the Imperial Mission of the Royal College, emphasised the importance and the value of the interchange of visits between teachers and students as a unifying and vivifying force. Sir Holburt Waring's visit to Melbourne to open the new building of the Royal Australasian College next March would be a further link between the two colleges and the two countries. Mr. Bruce and Mr. Green expressed their keen appreciation of the opportunity offered by the Royal College, and assured the examiners that they would receive the warmest of welcomes. Mr. Sandford, proposing the toast of the examiners, voiced the satisfaction of New Zealand at the action of the Royal College. In reply, Mr. Gordon-Taylor thanked the previous speakers, and Prof. Wright expressed the examiners' appreciation of the council's hospitality.

Charing Cross Hospital Annual Dinner

The annual dinner at the Café Royal, under the chairmanship of Mr. J. Bright Banister, numbered 157 covers. Lieut.-General J. A. Hartigan, director-general of Army Medical Services, and Dr. K. J. Franklin, dean of the Oxford Medical School, were present as guests, and the consulting staff of the hospital was represented by Dr. William Hunter, Dr. David Forsyth, Mr. T. Watts Eden, and Mr. Charles Gibbs. In proposing the "Medical School," the chairman recorded with regret the death of Dr. C. W. Hutt, lecturer in public health, and of Dr. E. D. Macnamara. They were sorry to lose Mr. W. H. McMullen as ophthalmic surgeon but welcomed Mr. M. L. Hine as his successor. The progress of the past year was extremely gratifying; the entry of students had again reached the fixed maximum and the examination results were good. He congratulated Mr. L. R. Broster on his appointment as examiner in surgery to the Conjoint Board, and Dr. R. A. Hickling as the first examiner in medicine for the Dental Diploma. Dr. Gordon Holmes was away in Canada as a delegate to the Neurological Congress, Dr. Russell Reynolds had represented Great Britain at the Geneva Radiological Congress, and Dr. H. G. Everard Williams had been elected to the Royal Ocean Racing Club of Great Britain. Letters patent had been issued granting a coat of arms in which was embodied the cross traditionally associated with the hospital and school. The school was just entering on its centenary year and he was looking to see developments worthy of the occasion.

Mr. Eric A. Crook, dean of the school, assured the chairman that the centenary would be celebrated in a fitting manner; details were now being worked out. Mr. Norman C. Lake related the steps which had led to the grant of a coat of arms and explained the significance of the bezants taken from the arms of the Golding family which identified the hospital and school with its founder, Dr. Benjamin Golding. In response to insistent demands, the four members of the consulting staff present all made brief remarks. Musical interludes were provided by Dr. S. Taylor Harris; Reginald Paul at the piano.

Royal Medical Benevolent Fund

At a recent meeting the committee voted 72 grants amounting to £1513. The following are particulars of a few cases helped:—

F.R.C.S., M.S., aged 58. Married with three children, aged 16, 14, and 12. Joined up for the war, and was in France 1915–17, when he retired because of ill-health. Then followed a long period of locums, coupled with ill-heath and a growing family to educate. Two years ago he started in a practice of his own. In July, 1934, the applicant was admitted to hospital and had an operation for pyloric stenosis. It was found that he had suffered from a duodenal ulcer for some years; he had been struggling to build up a practice to support his family while seriously ill. He will require a long holiday after his discharge from hospital, and he has no savings to meet this, nor for the support and maintenance of his family. There are some pressing debts. The fund has given immediate assistance of £30, and help has been obtained from other societies, amounting to £157.

Widow of L.R.C.P. & L.M. The husband died suddenly in 1923 due to syncope from heart disease. The widow, aged 30, was left inadequately provided for with three young children. She sought employment and has worked as nurse and housekeeper but was recently dismissed owing to breakdown in health. The eldest daughter has now reached the age for employment and is earning £83 per year, the two younger are at school. The fund and ladies' guild are assisting with grants amounting to £56. The total income available for food and household needs for this family is £167, which also has to meet children's extras at school, fares, and outfit.

Widow of L.R.C. & S. The husband died in 1931, leaving his widow, aged 46, with a family of five children. Three children were able to earn and contributed £147 to their mother towards their own maintenance. The fund gives a yearly grant of £26 and the ladies' guild £19 10s. Total income is £197 10s. Rent and rates are £58, which leaves £139 for the maintenance and household needs of six persons.

M.B., aged 66. Married. Has suffered a complete breakdown in health and further work is out of the question. He has done all that is possible to keep going, and is still not in debt as he has gradually drawn upon his endowment policies. He has now come to the end of his resources with the exception of a fixed yearly income of £60. He has been forced to take his daughter, aged 14, away from school. Fund voted £40 in four instalments for one year, and will try to arrange for the education of the child through the ladies' guild.

Cheques should be made payable to the hon. treasurer of the fund, 11, Chandos-street, Cavendish-square, London, W. 1.

University of London

At recent examinations the following candidates were successful :—

D.P.H.

Hyacinth I. Lightbourne, F. G. Macdonald, I. A. MacDougall, and Llywelyn Roberts.

On successive Mondays (Oct. 15th, 22nd, and 29th) Dr. Charles Singer, professor of the history of medicine in the university, will speak on three phases in the history of scientific medicine—Hippocrates, Galen, and Boerhaave. The lectures will be held at University College Hospital medical school at 4.15 P.M. On Oct. 16th, 17th, and 18th, at 5 P.M. at University College, Prof. L. J. Henderson, professor of biological chemistry in Harvard University, will lecture on physiological equilibrium. On Oct. 31st, Nov. 2nd, and 5th, Prof. Ludwig Fraenkel, formerly director of the women's clinic in the University of Breslau, will give three lectures entitled Forty Years of Gynæcological Endocrinology. They will be at 5.30 P.M. in the medical school of University College Hospital. On Nov. 1st, 2nd, and 9th, at 5.30 P.M. at the London (R.F.H.) School of Medicine for Women, Hunter-street, W.C., Prof. George Barger, F.R.S., professor of chemistry in relation to medicine in the University of Edinburgh, is to speak on chemical questions relating to pharmacology. All these lectures are addressed to students of the university, and others interested in the subjects are invited.

University of Liverpool

At recent examinations Dr. H. V. M. Jones and Dr. J. H. St. B. Crosby were approved for the diplomas in public health.

University of Durham

Mr. R. J. Willan has been appointed lecturer in surgery and Dr. George Hall lecturer in medicine in the College of Medicine, Newcastle-upon-Tyne.

West Kent Medico-Chirurgical Society

This society will hold its annual general meeting at the Miller General Hospital, Greenwich, S.E., to-day, Friday, Oct. 12th, at 8.45 P.M. Clinical cases will be shown.

Surgical Instrument Manufacturers' Association

The annual dinner of this association will be held at the Holborn Restaurant, London, W.C., on Friday, Oct. 26th, at 7 P.M., when the principal guest will be Mr. W. H. Ogilvie.

Periodic Examinations for Silicosis

Amending regulations which came into force on Oct. 1st, reduce the fee for periodic examinations under the Workmen's Compensation (Silicosis and Asbestosis) Act, 1930, from 22*s.* to 19*s.*, and provide that, subject to certain conditions, part of the fee payable to the medical board on application for a certificate shall be refunded.

Medical Defence Union

Mr. Eric Pearce Gould presided at the annual general meeting held at 49, Bedford-square, on Sept. 27th. The membership of the Union, he said, continued to increase and with it the work done by the council on behalf of the members. Last year the number of cases dealt with represented more than one for every ten members. The representative character of the council had been completed by the appointment of a vice-president who was a dental practitioner. An undertaking given at the last annual meeting had led to a revision of the articles of association which not only embodied the requirements of recent legislation, but indicated more clearly the current practice of the Union. The report of the council and the financial statement for 1933 were adopted with one dissentient. Dr. W. S. A. Griffith, Dr. V. A. Jaynes, and Mr. J. Furneaux Jordan, who retired under Article 28, were re-elected members of the council. Messrs. Lewis Hardy and Co. were reappointed auditors. At an extraordinary general meeting held later in the afternoon the revised articles, after certain amendments had been agreed to, were adopted with one dissentient. The resolution was also passed nem. con. :—

"that this meeting hereby ratifies and confirms all payments heretofore made out of the funds of the Union to members of the council in respect of travelling, hotel and other expenses incurred by them in attending or returning from meetings of the Union or of the council or of committees thereof or otherwise in or about the affairs of the Union."

New Storage Reservoirs on the Thames

Last week the Metropolitan Water Board approved the construction of two new storage reservoirs in the Thames Valley at a cost of £4,000,000. Parliamentary assent is required. When completed in four years the Thames storage will be increased by 57 per cent., bringing up the capacity from 66 to 105 days' supply, and reducing to this extent the likelihood of curtailing the flow over Teddington weir below the healthy minimum. The provision of these reservoirs will entail the construction of two trunk mains; one, 60 inches in diameter, from Kempton Park to Cricklewood, later to be extended to Fortis Green, will reinforce supplies from the Lee Valley; the other, 42 inches in diameter, to run from Hampton to the service reservoirs at Honor Oak, will provide for the growing needs of the Kent area.

Chelsea Clinical Society

The annual dinner of this society will be held at the Hotel Rembrandt, Thurloe-place, London, S.W., on Tuesday, Oct. 16th, at 8 P.M., with Dr. Charles Sundell, the president, in the chair. The guests will include the Home Secretary, the Mayor of Chelsea, and the Dean of St. Paul's.

Royal Dental Hospital

The annual conversazione and presentation of prizes of the Royal Dental Hospital of London school of dental surgery was held on Oct. 5th. Mr. H. Stobie, the dean, who presided, referred to the extension of the research and radiological departments and to the reorganisation of the museum. He welcomed the endowment of a scholarship by Lady Baldwin for work on porcelain restoration, and of a foundation scholarship by the governors of Epsom College. The hospital was open for inspection, and after an address by Prof. William Wright (an extract from which appears on p. 825), visitors listened to an entertainment and saw special exhibitions in the research, X ray, and electrotherapeutic departments.

Lewisham Hospital Extension

A new ward block at this hospital was opened by Lord Dawson on Oct. 9th. Since the hospital was transferred to the London County Council in 1930 and appropriated for the purpose of the reception of the sick, the Council has carried out many improvements. These include the provision of a pathological group laboratory, a dental clinic, a library for patients, a dispensary for out-patients, a preliminary training school for nurses, and a new mortuary unit. The new block now completed consists of three wings, with one central staircase and lift, and contains 54 surgical beds for men and women, 35 children's beds, 11 beds in small wards, and a maternity unit of 64 beds. This unit contains five labour rooms, a newborn babies' bathroom, and a premature babies' room specially heated and thermostatically controlled, and a sun parlour. Wireless earphone points are supplied for each patient and plugs for X ray examination by the bedside. The new works, including equipment, are estimated to cost £55,492. The total accommodation in the hospital is now 747, and the resident medical staff number 10.

Lord Dawson, in declaring the block open, referred to it as an example of a great forward movement. The tremendous burden resting on the broad shoulders of Sir Frederick Menzies, chief medical officer of the L.C.C., when the Council took over a large mass of poor-law accommodation and converted it into living hospitals had been increased by his large share in the task of founding the British Post-Graduate Medical School associated with Hammersmith Hospital. The importance attached by the L.C.C. to coöperation between themselves and the great voluntary institutions was manifest in the working arrangements made with these institutions for treatment of the sick, involving an expenditure of £500,000 a year. Each of the teaching hospitals of London was now connected with an allocated municipal hospital; there was thus a linkage, not only in thought but in actual practice. In the British Post-Graduate Medical School teachers would be drawn not only from Great Britain, but from all parts of the Empire. The Lewisham Hospital represented much vision and wisdom in those responsible for its planning, and a great asset was that it stood in 10 acres of ground, allowing room for expansion.

Institute of Medical Psychology

A course of eight lectures will be given on Tuesdays, Oct. 23rd to Dec. 11th, at 6 P.M. at this institute. The lectures will deal with psychology and modern problems, and the speakers will include Prof. C. G. Seligman, F.R.S., emeritus professor of ethnology in the University of London (psychology and racial differences); Dr. Emanuel Miller, senior physician to the children's department of the institute (the artist in modern civilisation); Prof. J. C. Flugel, assistant professor of psychology at University College (psychological aspects of marriage and the family); and Dr. H. Crichton-Miller, honorary senior physician to the institute (educational deals and the destiny of peoples). Further particulars and tickets for the course may be had from the hon. lecture secretary at the institute, Malet-place, London, W.C. 1.

University of Birmingham School of Medicine

Dr. Stanley Barnes, dean of the faculty of medicine, presided on Oct. 4th over the combined annual dinner of the Birmingham medical school and the University of Birmingham Medical Society. There were 256 people present. The toast of the school was proposed by Sir Charles Hyde, who said there were now 306 medical and 128 dental students. In his reply, the chairman spoke of some of the big events in the history of the school. The development of knowledge in the special branches of medicine had made, he said, for difficulty in teaching students; it was hard for them to determine "the relative values of those things they should learn and those which they should pass over." There was a tendency (as Dr. Francis Brett Young had pointed out in an address to the students earlier in the day) for the average student not to develop that clinical instinct which was so characteristic of the days of last century. "Personally," said Dr. Barnes, "I think it is a mistake which can be laid at the door of this development of specialism which has gone on, which has insisted on each individual subject being taught by a man who rather tends to regard medicine from his own particular angle only." Prof. P. C. P. Cloake proposed the toast of the Guests, who included Mr. Walter Barrow (pro-chancellor of the University) and Dr. Brett Young. Mr. Barrow, in his reply, recalled the adage that lawyers see the worst of a man, parsons see the best of a man, and the doctor sees him as he really is. He spoke with especial interest of the new department of industrial medicine and hygiene established in the University. Mr. R. J. Ingham, chairman of the University of Birmingham Medical Society, proposed the health of Dr. Stanley Barnes, and the chairman briefly replied.

Messrs. WATSON & SONS (ELECTRO-MEDICAL) LIMITED, of Sunic House, Parker-street, London, W.C., are moving their Edinburgh branch to 86, George-street. The new premises include improved facilities for service work and a showroom where apparatus can be demonstrated.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Oct. 16th.

Pathology. 8 for 8.30 P.M. Dr. Paul Fildes: Medical Bacterial Chemistry. (Presidential address.)

THURSDAY.

Dermatology. 5 P.M. (Cases at 4 P.M.) Cases. Dr. H. Corsi: 1. Urticaria Pigmentosa. 2. Pigmentation ? Vitiligo. Dr. Louis Forman: 3. Darier's Disease. Dr. H. Barber: 4. Scleroderma. 5. Sections from Lesions on Forehead of Case of Rosaceous Tuberculide, Previously Shown. Dr. G. B. Dowling: 6. Myxomatous Degeneration Associated with Hyperthyroidism. Other cases will be shown.

Neurology. 8.30 P.M. Discussion on Unsettled Questions of Neurosyphilis, to be opened by Dr. S. A. Kinnier Wilson, followed by Mr. J. E. R. McDonagh, Dr. Buckley Sharp, Dr. David Nabarro, Dr. W. Nicol, Dr. K. Paddle, Dr. L. C. Cook, Mr. R. Lindsay Rea, and Mr. Sydney Scott.

FRIDAY.

Physical Medicine. 5 P.M. Dr. J. Barnes Burt: Some Problems in the Study of Sciatica. (Presidential address.)

Obstetrics and Gynæcology. 8 P.M. Dr. Reece: A Simple Method of Measuring the Fœtal Head in Utero. Dr. C. R. Croft: Contraction Ring. Treatment by Amyl Nitrite. Prof. J. Preston Maxwell: Osteomalacia and Fœtal Rickets.

Radiology. 7 P.M. Dr. F. Hernaman-Johnson: The Radiologist as Physician. (Presidential address.)

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Upper Montague-street, W.

FRIDAY, Oct. 19th.—5 P.M., Dr. R. Veitch Clark: Presidential Address.

EUGENICS SOCIETY.

TUESDAY, Oct. 16th.—5.15 P.M. (Linnean Society's Rooms, Burlington House, Piccadilly, W.), Prof. F. C. S. Schiller: Ant-men or Super-men.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, 26, Portland-place.

THURSDAY, Oct. 18th.—8.15 P.M., Prof. W. W. Jameson: Medical Services at Home and Abroad.

SOUTH-WEST LONDON MEDICAL SOCIETY.

WEDNESDAY, Oct. 17th.—9 P.M. (at the Bolingbroke Hospital, Wandsworth Common, S.W.), Dr. Russell Reynolds: Cineradiography.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

THURSDAY, Oct. 18th.—4 P.M., Dr. James Collier: Inventions and the Outlook in Neurology (Harveian oration)

LONDON HOSPITAL POST-GRADUATE COURSE.

WEDNESDAY, Oct. 17th.—10 A.M., Mr. W. R. Keizer: Dental Cases. 11 A.M., Dr. A. G. Maitland-Jones: Diseases of Respiratory System in the Infant and Child. 11.30 A.M., Dr. Donald Hunter: Mistakes in Diagnosis. 12.30 P.M., Dr. Russell Brain: Some Recent Advances in Treatment. 1.30 P.M., Mr. Alan Perry: The Acute Abdomen. 2 P.M., Dr. George Riddoch: Demonstration of Cases. 3.30 P.M., Dr. M. H. Jupe: Radiology of Intracranial Conditions. 4.15 P.M., Mr. H. S. Souttar: Radium.

THURSDAY.—10 A.M., Mr. C. B. Goulden: Ophthalmia Emergencies. 10.45 A.M., Mr. F. F. Muecke: Everyday Helps. 11.30 A.M., Dr. W. J. O'Donovan: Graver Aspects of Lupus Vulgaris. 12.15 P.M., Mr. Charles Donald: Surgical Infections and Sepsis. 2 P.M., Mr. Victor Lack and Mr. Alan Brews: Antenatal Clinic. 2 P.M., Dr. John Parkinson: Goitre Heart. 3.30 P.M., Dr. O. Leyton: Migraine. 4.30 P.M., Sir Farquhar Buzzard: Hughlings Jackson and his Influence on Neurology. (Schorstein lecture.)

FRIDAY.—10.15 A.M., Mr. Norman Patterson: Treatment of Malignant Diseases. 11.15 A.M., Mr. Robert Milne: Shoulder Pain and Stiffness. 12.15 P.M., Mr. Hugh Cairns: Intracranial Tumour and other Neuro-surgical Conditions. 2 P.M., Dr. Cecil Wall: Sanocrysin. 2.45 P.M., Prof. Arthur Ellis: Pyelitis. 3.45 P.M., Dr. G. E. Vilvandré: Radiology in the Diagnosis of Cancer. 8.15 P.M., Dr. Ashley Daly and Dr. N. A. Gillespie: Methods of Anæsthesia. (Demonstration.)

SATURDAY.—10.15 A.M., Dr. K. H. Tallerman: Rheumatism in Children. 11 A.M., Dr. A. E. Clark-Kennedy: Minor Gastric Disorders. 12 noon, Mr. A. J. Walton: Peptic Ulceration.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

MONDAY, Oct. 15th to SATURDAY, Oct. 20th.—MEDICAL SOCIETY OF LONDON, Chandos-street, Cavendish-square, W., on Tuesday, Oct. 16th, at 2.30 P.M., Dr. A. E. Clark-Kennedy: Giddiness.—METROPOLITAN GENERAL HOSPITAL, Kingsland-road, E. All-day course in medicine and surgery.—ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W. Lecture-demonstrations in Physical Medicine, at 8 P.M.—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W. Course in Dermatology. Lectures at 5 P.M.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. All-day course in cardiology.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Afternoon Course in Ophthalmology.—ROYAL ALBERT DOCK HOSPITAL, E. Week-end Course in Clinical Surgery, Oct. 20th and 21st.—(Courses of instruction are open only to members and associates of the Fellowship.)

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Oct. 15th.—10 A.M., medical wards, skin clinic. 11 A.M., Surgical wards. 2 P.M., surgical and gynæcological wards, eye and gynæcological clinics. 4.15 P.M., Mr. Green-Armytage: 36th–37th Week of Pregnancy.

TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., throat clinic. 4.15 P.M., Dr. Konstam: Diabetes Mellitus.

WEDNESDAY.—10 A.M., children's medical wards and clinic. 2 P.M., medical wards, eye clinic.

THURSDAY.—10 A.M., neurological and gynæcological clinics. 11.30 A.M., fracture demonstration. 2 P.M., eye and genito-urinary clinics. 4.15 P.M., Mr. Roche: Stone in the Urinary Tract.

FRIDAY.—10 A.M., Skin Clinic. Noon, Lecture on Treatment. 2 P.M., Throat Clinic.

SATURDAY.—10 A.M., medical and surgical wards, children's and surgical clinics.

Daily at 2 P.M., operations, medical and surgical clinics. (The lectures at 4.15 P.M. are open to all medical practitioners without fee.)

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

TUESDAY, Oct. 16th.—5 P.M., Dr. G. B. Dowling: Seborrhœa and Seborrhœic Dermatitis.

WEDNESDAY.—5 P.M., Dr. I. Muende: Histopathology of Common Skin Diseases (Chesterfield lectures).

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Oct. 15th.—3.30 P.M., Dr. Carmichael: The Physiology of the Cerebro-spinal Fluid.
TUESDAY.—3.30 P.M., Dr. Denny-Brown: Spinal Reflexes.
WEDNESDAY.—3.30 P.M., Dr. Collier: Clinical Demonstration.
THURSDAY.—3.30 P.M., Dr. Denny-Brown: Spinal Reflexes.
FRIDAY.—3.30 P.M., Dr. Bernard Hart: The Psychoneuroses.
Out-patient clinic daily at 2 P.M.

UNIVERSITY OF LONDON.
MONDAY, Oct. 15th.—4.15 P.M. (University College Hospital Medical School, W.C.), Prof. Charles Singer: Three Phases in the History of Scientific Medicine. (1) Hippocrates.
TUESDAY, Oct. 16th, WEDNESDAY, and THURSDAY.—5 P.M. (University College, W.C.), Prof. L. J. Henderson: Physiological Equilibrium.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck-street, W.
THURSDAY, Oct. 18th.—8 P.M., Major H. E. P. Yorke: "Upright" Radiography with Especial Reference to the Investigation of the Nasal Sinuses.
FRIDAY.—11 A.M., Visit to Marie Curie Hospital, Fitzjohn's-avenue, N.W. 5 P.M., Discussion on the Future of Radiology, to be opened by Dr. Ffrangcon Roberts.

INSTITUTE OF HYGIENE, 28, Portland-place, W.
WEDNESDAY, Oct. 17th.—3.30 P.M., Dr. Henry Yellowlees: Prevention of Nervous Disorders.

HAMPSTEAD GENERAL AND NORTH-WEST HOSPITAL, N.W.
WEDNESDAY, Oct. 17th.—3 P.M., Sir Henry Brackenbury: Patient and Doctor.

BRITISH RED CROSS SOCIETY CLINIC FOR RHEUMATISM, Peto-place, Marylebone-road, N.W.
THURSDAY, Oct. 18th.—8.30 P.M., Mr. J. James: Dental Sepsis and Its Significance in Rheumatism.

KING'S COLLEGE HOSPITAL, Denmark-hill, S.E.
THURSDAY, Oct. 18th.—9 P.M., Dr. Wilfrid Sheldon: Common Difficulties in Infant Feeding.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.
MONDAY, Oct. 15th–SATURDAY.—Intensive course in Laryngology, Rhinology, and Otology (third week).

ANCOATS HOSPITAL, Manchester.
THURSDAY, Oct. 18th.—4.15 P.M., Dr. W. J. S. Reid: The Borderline Patient.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Oct. 16th.—4.15 P.M., Mr. C. Roberts: Medico-Legal Practice regarding Claims for Injuries.
FRIDAY.—4.15 P.M., Mr. J. Morley: Demonstration of Surgical Cases.

LEEDS GENERAL INFIRMARY.
TUESDAY, Oct. 16th.—3 P.M., Dr. Watson: Demonstration of Cases.

Appointments

CAREY, G. F., M.B., has been appointed honorary assistant physician to the Margaret-street Hospital for Consumption, London, W.

OWEN, DONALD, M.D. Liverp., M.R.C.P. Lond., D.T.M., honorary assistant physician to the Liverpool Royal Infirmary, and demonstrator in medicine in the University of Liverpool.

Queen Charlotte's Maternity Hospital.—The following appointments are announced:—
CAMPBELL, R. W. GRAHAM, F.R.C.S. Eng., senior resident medical officer;
HARDY, T. T., B.M. Oxon., assistant resident medical officer;
MACKINLAY, CATHERINE, M.B. Lond., district resident medical officer; and
TAYLOR, CONSTANCE L., M.B. Edin., resident anæsthetist.

Certifying Surgeons under the Factory and Workshop Acts: Dr. D. K. M. CHALMERS (Rickmansworth District, Herts).

Vacancies

For further information refer to the advertisement columns.

Altrincham General Hospital.—Sen. and Jun. H.S.'s. At rate of £150 and £120 respectively.
Bangor, Caernarvonshire and Anglesey Infirmary.—Sen. and Jun. H.S. £150 and £100 respectively.
Bath, Royal United Hospital.—Out-patient and Cas. O. At rate of £150.
Belgrave Hospital for Children, Clapham-road, S.W.—H.P., and H.S. Each at rate of £100.
Birmingham, Selly Oak Hospital.—Cas. O. At rate of £200.
Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £120.
Brighton, Sanatorium and Infectious Disease Hospital.—Jun. Res. M.O. At rate of £250.
Bristol General Hospital.—Hon. Physician.
Bristol Royal Infirmary.—Hon. Surgeon. Also Hon. Asst. Surgeon.
Burnley Municipal General Hospital.—Jun. Res. M.O. £150. Also Res. Surg. O. £600.
Cardiff, King Edward VII. Welsh National Memorial Assn.—Asst. Res. M.O. £200.
Cancer Hospital, Fulham-road, S.W.—Asst. Radium Officer £350.
Chesterfield and North Derbyshire Royal Hospital.—Res. Surg. O. £300.
Chester Royal Infirmary.—H.S. £150.
Coventry and Warwickshire Hospital.—Res. H.S. £125.
Dewsbury and District General Infirmary.—H.S. £150.
Doncaster Royal Infirmary.—H.S. to Ear, Nose and Throat Dept. £175.
Dublin, House of Recovery and Fever Hospital, Cork-street.—H.P. £100.
Eastbourne, Princess Alice Hospital.—Res. H.S. £150.
Eastbourne, Royal Eye Hospital, Pevensey-road.—H.S. £100.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Asst. Surgeon to Throat, Nose and Ear Dept.
Epsom College, Bedford-square, W.C.—Council Exhibitioners. Each £75.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.S. At rate of £100.
Holborn Metropolitan Borough, W.C.—M.O.H. £1000.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Anæsthetist.
Indian Research Fund Association.—Experts on Nutrition. Rs.1250–1750.
Kettering and District General Hospital.—Res. M.O. £200.
King Edward Memorial Hospital, Ealing.—Jun. Res. M.O. At rate of £150.
Leamington Spa, Warneford General Hospital.—H.S. to Special Depts. At rate of £150
Leeds City.—Part-time M.O. for No. 2 Medical Relief District. At rate of £200.
Lewes, East Sussex County Council.—Dist. M.O. and Public Vaccinator. £80, &c.
Liverpool City.—Asst. M.O. £500.
Liverpool, Royal Southern Hospital.—Hon. Asst. Phy. Hon. Dermatologist. Also Hon. Med. Psychologist.
Liverpool School of Tropical Medicine.—Leverhulme Research Fellowship. £600.
London County Council.—Sen. Asst. M.O.'s. Also Asst. M.O.'s. £500 and £350 respectively.
Manchester, St. Mary's Hospitals.—Res. Obstet. Officer for Whitworth-street West Hospital. £175.
Market Drayton, Cheshire Joint Sanatorium.—Third Asst. M.O. £250.
Metropolitan Hospital, Kingsland-road, E.—Sen. and Jun. H.P.'s. and H.S.'s. and Cas. O. Each at rate of £100.
Ministry of Health, Whitehall, S.W.—Deputy Regional M.O. £800.
Newport, Isle of Wight County Mental Hospital.—Clin. Asst. 30 gns.
Newcastle-upon-Tyne Royal Victoria Infirmary.—Reg. to Orthopædic Dept. £150.
Pontypool and District Hospital.—Res. M.O. £150.
Portsmouth Royal Hospital.—Cas. O. At rate of £130.
Preston, County Mental Hospital, Whittingham.—Res. Jun. Asst. M.O. £500.
Prestwich, Manchester, County Mental Hospital.—Jun. Asst. M.O. £500.
Reading, Royal Berkshire Hospital.—H.P., H.S. to Spec. Depts. Also Cas. O. Each at rate of £125.
Rochdale Infirmary and Dispensary.—Jun. H.S. £200.
Royal College of Surgeons of England, Lincoln's Inn-fields, W.C.—Asst. Conservator of the Museum. £400–£500.
Royal Dental Hospital of London, Leicester-square, W.C.—Hon. Pathologist. Also Two part-time House Anæsthetists. 10s. 6d. per session.
Royal Northern Hospital, Holloway, N.—Second Ophth. Surgeon. Also Clin. Asst. for Children's Dept.
Royal National Orthopædic Hospital, 234, Gt. Portland-street, W.—Hon. Asst. Surgeon.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. At rate of £100.
St. George's Hospital, S.W.—Surgeon and Asst. Surgeon.
St. Mary's Hospital Medical School, W.—Second Asst. to Surg. Unit. £500.
St. Mary's Hospital, W.—Cas. H.S. At rate of £100.
St. Thomas's Hospital, S.E.—Associate Plastic Surgeon. Also Res. Anæsthetist. £200.
Southampton Free Eye Hospital.—Hon. Ophth. Surgeon.
Southend-on-Sea General Hospital.—H.P. At rate of £100.
University College Hospital, Gower-street, W.C.—Hon. Anæsthetist.
Ventnor, Isle of Wight, Royal National Hospital for Consumption, &c.—Jun. Asst. Res. M.O. At rate of £300.
The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Crowle, Lincolnshire.

Births, Marriages, and Deaths

BIRTHS

BIRT.—On Sept. 29th, at a Birmingham nursing-home, the wife of Surg. Lieut.-Commdr. C. H. Birt, R.N., of a son.
GREEN.—On Oct. 1st, the wife of Leslie E. Green, M.R.C.S., Eastleigh, Hampshire, of a daughter.

DEATHS

BOWIE.—On Oct. 5th, suddenly, at Edinburgh, John Macaulay Bowie, Croix de Guerre, M.D., F.R.C.S. Edin.
HARRINGTON.—On Oct. 2nd, at Park-road South, Birkenhead, Henry Naseby Harrington, M.R.C.S. Eng.
NICHOLSON.—On Oct. 3rd, at Westminster, following an operation, Balfour Stewart Nicholson, M.D. Glasg., D.P.H., tuberculosis officer, Derby County Council, aged 62.
STANWELL.—On Oct. 5th, at Preston, Lancs, Charles Oliver Stanwell, L.R.C.P. Edin.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

SMALL-POX AND VACCINATION

Prof. W. J. Tulloch's Harben lectures delivered at the Royal Institute of Public Health on Monday, Tuesday, and Wednesday last were concerned with the diagnosis of small-pox and the investigation of vaccinia by laboratory methods. Such methods may, he said, be of particular importance at the present time. In the first place there are now many districts where practitioners are unfamiliar with variola in any form. Secondly, even when severe classical small-pox does break out it may have atypical manifestations in those who have been vaccinated in early life only. Thirdly, both from the diagnostic and the clinical standpoint, the problem had been much complicated by the local occurrence of minor small-pox.

There seems to be little doubt, Prof. Tulloch said, that if the people of this country were so placed that classical oriental small-pox could with ease be introduced from abroad, compulsory vaccination—really made compulsory—would be essential. "If such a danger were to arise I have no doubt that universal compulsory vaccination would be demanded quite as insistently by the populace as by the health administration." The trouble is that the danger is potentially ever present, and a scare is liable to tax very severely the production of vaccine and throw a very grave responsibility upon those whose duty it is to maintain the supply. It should be put clearly to the people that infantile vaccination properly carried out is really a safe and justifiable procedure, and that its neglect may lead in time of stress to conditions which render it less safe.

It should also be made clear that vaccination is employed to protect against virulent small-pox and not against the minor small-pox. But is there really any danger of virulent small-pox being introduced into this country and, if it is introduced, is it likely to spread? "One cannot be dogmatic in attempting to answer this question. Certainly improved public health administration at our seaports, and the great facility with which information concerning outbreaks can be conveyed to all responsible authorities should do much to minimise that danger. The way in which the *Tuscania* outbreak was kept within very circumscribed limits is an example of the advance which has been achieved in this way. It must, however, be realised that the increase in the volume of traffic, and the wider diffusion thereof by newer methods of transport on land and by air, could exert an opposite effect, so that if the disease did gain a foothold its dissemination might be widespread and by no means easy to trace."

The following points, Prof. Tulloch concluded, should be emphasised to the profession and to the public:—

(1) Vaccination gives complete protection against both small-pox major and small-pox minor for several years, and partial protection for the greater part of the span of life.

(2) The real value of the procedure as far as the individual is concerned is that it protects against small-pox major. So far as the community is concerned its value as a protection against small-pox minor is not unimportant, for the control of the minor malady is sometimes rather costly to local health authorities.

(3) There is a potential danger at least that small-pox major may gain a footing at any time in this country.

(4) We owe a debt of gratitude to the neighbouring countries which do enforce compulsory vaccination. It is significant that this measure is rigidly enforced in those European lands—Bulgaria, Czechoslovakia, Austria, and Hungary—whose geographical position is such that the disease may be introduced from the East.

(5) The danger of grave complications following vaccination, notably encephalitis, is very slight when the procedure is performed early in life, but it is by no means negligible when primary vaccination has perforce to be carried out during the school years.

In the absence of universal and compulsory vaccination, accurate methods of diagnosis in doubtful cases are a valuable means of limiting the propagation of the disease.

ANALYSIS OF BONES FOR LEAD

AT a meeting of the Society of Public Analysts held in London on Oct. 3rd a paper on the determination of lead in biological material, with special reference to bone, was read by Dr. G. Roche Lynch, Mr. R. H. Slater, D.Sc., and Dr. T. G. Osler. In their procedure the risk of loss of lead by volatilisation during the ashing of bone is overcome by a method of wet oxidation with nitric and sulphuric acids, which leaves a precipitate of calcium sulphate and a solution of phosphoric acid. These are treated in a refrigerator with rectified spirit, and the calcium sulphate is filtered off and heated with potassium carbonate solution, the resulting calcium carbonate being dissolved in acetic acid. Finally the lead in the calcium acetate solution and the filtrates from the previous operations is determined by the diphenylcarbazone method. By this method amounts of lead ranging from 25 to 232 parts per million of ashed bone were found; teeth contained from 71 to 370 p.p.m.; and urine (in a case of plumbism) 0·27 p.p.m. (on the ashed substance). A high lead content in bone is no evidence that lead was a contributory cause of death, but indicates exposure to lead at some stage. Storage of lead in the bone explains the failure to find lead in certain tissues in which there is chemical evidence of lead poisoning.

AN IMPROVED STOP WATCH

WE have received from Messrs. A. Arnold and Co., 122, St. John-street, Clerkenwell-road, E.C., a stop-watch which incorporates many new features. Besides the usual 60 seconds dial this watch has a small 60 minute dial marked in red for a period of 45 minutes which makes it eminently suitable for refereeing games and events in which a time limit is specified. An additional attachment is an eliminator set on the side of the watch enabling the user to stop and restart the hands without having to return them to zero. The watch is called the Arnold's Universal 1/5th seconds Racing Recorder, is guaranteed for a period of three years, and is finished in a highly chromium plated case with an unbreakable glass. It is priced at 25*s*.

A NEW ITALIAN PERIODICAL

A NEW periodical has been brought out in Italy under the title of *Difesa Antitubercolare*. It is published in Genoa under the joint editorship of Senators E. Maragliano and N. Pende, and it is dedicated to the Maragliano collective struggle against tuberculosis. The preface claims that Genoa can boast of being the first among Italian cities to carry on this struggle with institutions of medico-social importance, at a time when in other countries the means employed were no more than embryonic. In this first number of the review, published last June, there are articles by Prof. G. Breccia on slow pulmonary tuberculosis, by Prof. A. Campani on the aid to be given to the tuberculous, and one by Sir P. Varrier-Jones, of the Papworth Village Settlement, Cambridge, who says that in the absence of a perfect system of prophylaxis it is unlikely that the tuberculosis problem will be solved until medical treatment is supplemented by essential social measures. There is also an inspiring account by Prof. Maragliano on the military sanatorium of Anzio, which receives and treats soldiers who have contracted tuberculosis during their service. Out of 10,973 patients received between 1919 and 1933, 9103 recovered, 1324 were improved, 341 were not improved, and 205 died.